

7th Annual Meeting of the Lupus Academy

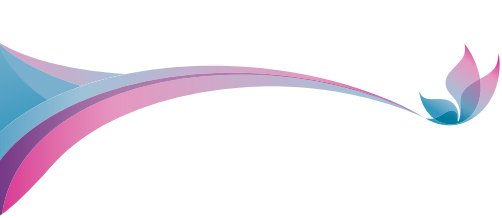
# Abstract Book

Rio de Janeiro, Brazil  
6–8th September 2018



**LupusAcademy**

Communicate. Educate. Treat.



# Welcome

## Dear Friends and Colleagues,

We are delighted to welcome you to the 7th Annual Meeting of The Lupus Academy<sup>†</sup>, which is being held in close collaboration with the XXXV Brazilian Congress of Rheumatology and hope you will find it a rich, engaging, informative and rewarding environment in which you can develop both your knowledge of managing lupus and exchange ideas with peers.

The Lupus Academy is committed to continuing the development of high quality educational programmes, focused on providing insightful and clinically relevant content through both live meetings and eLearning environments. With this, we aim to support you as you strive to provide best-in-class patient care and improve patient outcomes in lupus.

This Annual Meeting, which has been certified for Continuing Medical Education (CME) credit, aims to provide latest insights into advances in global research and clinical practice in lupus and allied diseases. Delegate feedback from our previous annual meetings continues to guide us in selecting the topics and speakers you need to ensure translation of treatment advances into your clinical practice.

The scientific component of this programme, developed by our Steering Committee of 12 international experts in lupus, is designed to create a highly interactive forum through which we can all develop a logical approach to the management of lupus worldwide.

This meeting will give you the opportunity to meet like-minded clinicians and scientists and, through the sharing of clinical and scientific experience, develop your knowledge in this fast moving therapeutic area.

We sincerely hope that this meeting will provide you with new ideas for your clinical work, enriched enthusiasm for collaborative research, and fruitful discussions with your colleagues who care for patients with lupus.

We look forward to meeting and talking with you here in Rio.

With kind regards,

The Lupus Academy Steering Committee

**Professor Murray Urowitz**  
Course Director and co-Chair 2018

**Professor Bevra Hahn**  
co-Chair 2018

**Professor Zahir Amoura**  
**Professor Richard Furie**  
**Professor Bernardo Pons Estel**

**Professor Ricard Cervera**  
**Professor David Isenberg**  
**Professor Ronald van Vollenhoven**

**Professor Andrea Doria**  
**Professor Munther Khamashta**

**Professor Thomas Dörner**  
**Professor Sandra Navarra**

<sup>†</sup>The Lupus Academy is a long-term initiative dedicated to improving patient outcomes in SLE through an interactive educational forum dedicated to sharing best clinical practice through the dissemination and discussion of clinical and basic scientific research about SLE and allied diseases



## Meeting Learning Objectives

The programme of the 7th Annual Meeting of the Lupus Academy 7th Annual Meeting will focus on current key issues in lupus clinical practice and is designed to facilitate improved understanding of these issues and their management through both didactic lectures and shared clinical insights through case study workshops. At the end of the programme delegates should be able to:

- Understand the current views on phenotyping systemic lupus erythematosus for improved clinical outcomes.
- Discuss current classification criteria for the effective management of systemic lupus erythematosus.
- Develop their clinical practice in line with recent developments in the classification, treatment and transplant outcomes for patients with lupus nephritis.
- Improve their clinical practice by better and more effectively identifying SLE cases, including patients with infection and flare, family planning and pregnancy, juvenile and adolescent lupus, haematologic lupus, lupus and cancer, and lupus and overlap syndromes.
- Understand the treat-to-target principle in terms of clinical and patient outcomes in lupus, considering current treatment targets, including remission and quality of life outcomes.
- Improve their management of lupus by using biomarkers to predict flares and present damage, including atherosclerosis, bone disease, infection and malignancy.
- Understand the clinical phenotypes and the management of CNS lupus and how imaging can be used to improve their clinical management of this manifestation.

## Continuing Medical Education



**ACCME**  
**ACCREDITED**

This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of Siyemi Learning and the Lupus Academy. Siyemi Learning is accredited by the ACCME to provide continuing medical education for physicians.

Siyemi Learning designates this live activity for a maximum of 12 *AMA PRA category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

The 7th Annual Meeting of the Lupus Academy is supported by independent educational grants from:

GSK, Celgene, Roche and Aurinia.

## Disclosures

Financial disclosures of the speakers can be found with their biography in this book.

Neither the Lupus Academy planning staff, Julian Ball, Nicole Elzebroek, Eugene Pozniak, nor staff at Siyemi Learning, have any relevant financial relationships to disclose.

Further information about Lupus Academy can be found on Page 70 of this book.

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# Programme

| Thursday 6th September                                           |                                                                                              |                                                        | Page |
|------------------------------------------------------------------|----------------------------------------------------------------------------------------------|--------------------------------------------------------|------|
| 17:00–17:10                                                      | Opening Address                                                                              | Bevra Hahn (USA) & Murray Urowitz (Canada)             |      |
| Keynote Lectures: Phenotyping and Pathogenic Mechanisms in Lupus |                                                                                              | Moderator: Bevra Hahn (USA)                            |      |
| 17:10–17:40                                                      | Which lupus is it? Phenotyping lupus in 2018                                                 | Murray Urowitz (Canada)                                | 24   |
| 17:40–18:10                                                      | Understanding pathogenic B-cell functions in SLE: Where are we with new therapeutic targets? | Thomas Dörner (Germany)                                | 26   |
| 18:10–18:20                                                      | Discussion                                                                                   |                                                        |      |
| Keynote Lectures: Classification Criteria for Lupus              |                                                                                              | Moderators: Bevra Hahn (USA) & Murray Urowitz (Canada) |      |
| 18:20–18:50                                                      | Evolution of SLE classification criteria                                                     | Ian Bruce (UK)                                         | 28   |
| 18:50–19:20                                                      | New SLE classification criteria: Beyond SLICC                                                | Sindhu Johnson (Canada)                                | 30   |
| 19:20–19:30                                                      | Discussion                                                                                   |                                                        |      |

| Friday 7th September                     |                                                                                  |                                                                                                                                                | Page |
|------------------------------------------|----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|------|
| Plenary I: What's New in Lupus Nephritis |                                                                                  | Moderators: Rich Furie (USA) & Bevra Hahn (USA)                                                                                                |      |
| 08:30–09:00                              | Classification of lupus nephritis: What's new?                                   | Brad Rovin (USA)                                                                                                                               | 32   |
| 09:00–09:30                              | Emerging therapies for lupus nephritis                                           | Liz Lightstone (UK)                                                                                                                            | 34   |
| 09:30–10:00                              | Lupus nephritis: Dialysis and transplant                                         | Evandro Klumb (Brazil)                                                                                                                         | 36   |
| 10:00–10:30                              | Discussion                                                                       |                                                                                                                                                |      |
| 10:30–11:00                              | Break                                                                            |                                                                                                                                                |      |
| Case Study Workshops (I)                 |                                                                                  |                                                                                                                                                |      |
| 11:00–12:00                              | Moderator: Murray Urowitz (Canada)<br>Lupus and infection versus/plus flare      |  Bernardo Pons-Estel (Argentina) & Zahir Amoura (France)    | 40   |
| 11:00–12:00                              | Moderator: Ronald van Vollenhoven (Netherlands)<br>Juvenile and adolescent lupus |  Clovis da Silva (Brazil) & Claudia Saad Magalhaes (Brazil) | 42   |
| 11:00–12:00                              | Moderator: Thomas Dörner (Germany)<br>Haematologic lupus                         |  Rich Furie (USA) & Ian Bruce (UK)                          | 44   |
| 11:00–12:00                              | Moderator: Bevra Hahn (USA)<br>Lupus overlap syndromes                           |  Ricard Cervera (Spain) & Andrea Doria (Italy)              | 46   |
| 11:00–12:00                              | Moderator: Munther Khamashta (UAE)<br>Lupus: Family planning and pregnancy       |  Eloisa Bonfá (Brazil) & Guilherme de Jesus (Brazil)        | 48   |
| 11:00–12:00                              | Moderator: Sindhu Johnson (Canada)<br>Lupus and cancer                           |  Adriana Danowski (Brazil) & David Isenberg (UK)            | 50   |

| Case Study Workshops (II)                                  |                                                                                         |                                                                                   |                                                                      |    |
|------------------------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------|----|
| 12:00–13:00                                                | <i>Moderator: Murray Urowitz (Canada)</i><br>Lupus and infection versus/plus flare      |  | Bernardo Pons-Estel (Argentina) & Zahir Amoura (France)              | 40 |
| 12:00–13:00                                                | <i>Moderator: Ronald van Vollenhoven (Netherlands)</i><br>Juvenile and adolescent lupus |  | Clovis da Silva (Brazil) & Claudia Saad Magalhaes (Brazil)           | 42 |
| 12:00–13:00                                                | <i>Moderator: Thomas Dörner (Germany)</i><br>Haematologic lupus                         |  | Rich Furie (USA) & Ian Bruce (UK)                                    | 44 |
| 12:00–13:00                                                | <i>Moderator: Bevra Hahn (USA)</i><br>Lupus overlap syndromes                           |  | Ricard Cervera (Spain) & Andrea Doria (Italy)                        | 46 |
| 12:00–13:00                                                | <i>Moderator: Munther Khamashta (UAE)</i><br>Lupus: Family planning and pregnancy       |  | Eloisa Bonfá (Brazil) & Guilherme de Jesus (Brazil)                  | 48 |
| 12:00–13:00                                                | <i>Moderator: Sindhu Johnson (Canada)</i><br>Lupus and cancer                           |  | Adriana Danowski (Brazil) & David Isenberg (UK)                      | 50 |
| 13:00–14:00                                                | Break                                                                                   |                                                                                   |                                                                      |    |
| Plenary II: Treat-to-Target: Clinical and Patient Outcomes |                                                                                         |                                                                                   | <i>Moderators: David Isenberg (UK) &amp; Loreto Massardo (Chile)</i> |    |
| 14:00–14:30                                                | Current treatment targets in lupus                                                      |                                                                                   | Rich Furie (USA)                                                     | 52 |
| 14:30–15:00                                                | Remission and low disease activity as treatment targets in lupus                        |                                                                                   | Ronald van Vollenhoven (Netherlands)                                 | 54 |
| 15:00–15:30                                                | Quality of life as a treatment target in lupus                                          |                                                                                   | Matthias Schneider (Germany)                                         | 56 |
| 15:30–16:00                                                | Discussion                                                                              |                                                                                   |                                                                      |    |
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| Saturday 8th September           |                                                                             |                                                                               |                                                                                             | Page |
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| Plenary III: Management of Lupus |                                                                             | <i>Moderators: Eloisa Bonfá (Brazil) &amp; Ricard Cervera (Spain)</i>         |                                                                                             |      |
| 09:00–09:30                      | Biomarkers to predict flares                                                |                                                                               | Judith James (USA)                                                                          | 58   |
| 09:30–10:00                      | Preventing damage (atherosclerosis, bone disease, infection and malignancy) |                                                                               | David Isenberg (UK)                                                                         | 60   |
| 10:00–10:30                      | Discussion                                                                  |                                                                               |                                                                                             |      |
| 10:30–11:00                      | Break                                                                       |                                                                               |                                                                                             |      |
| Curbside Consults                |                                                                             | <i>Moderator: Thomas Dörner (Germany)</i>                                     |                                                                                             |      |
| 11:00–11:45                      | The experts tackle three short challenging cases                            |                                                                               | David Isenberg (UK)<br>Zahir Amoura (France)<br>Munther Khamashta (UAE)<br>Bevra Hahn (USA) | 62   |
| Plenary IV: CNS Disease          |                                                                             | <i>Moderators: Bernardo Pons-Estel (Argentina) &amp; Andrea Doria (Italy)</i> |                                                                                             |      |
| 11:45–12:15                      | Clinical phenotypes and the management of neuropsychiatric lupus            |                                                                               | Bevra Hahn (USA)                                                                            | 64   |
| 12:15–12:45                      | Update on imaging in neuropsychiatric lupus                                 |                                                                               | Simone Appenzeller (Brazil)                                                                 | 66   |
| 12:45–13:00                      | Discussion                                                                  |                                                                               |                                                                                             |      |
| 13:00                            | Close                                                                       |                                                                               | Bevra Hahn (USA) & Murray Urowitz (Canada)                                                  |      |

## Biographies



### **Professor Zahir Amoura, MD, MSc**

French National Reference Centre for SLE and APS, Pitie-Salpetrière Hospital, Paris, France

Zahir Amoura is Professor of Internal Medicine and Head of the Department of Internal Medicine at the French National Reference Centre for Systemic Lupus Erythematosus at Pitie-Salpetrière Hospital. Professor Amoura completed his Paris Hospital Medical Internship in 1988, and obtained a Master's degree in Immunopharmacology in 1989. He was subsequently awarded his MD (silver medal) in 1993 and his qualifying certification in internal medicine in 1994. Professor Amoura joined the Department of Internal Medicine at Pitie-Salpetrière Hospital in 1995 as a Senior Lecturer and Senior Practitioner. He has been Professor of Internal Medicine there since 2003, and in 2009 became Head of the Department of Internal Medicine in the same institution.

In the last 15 years, he has published over 370 peer-reviewed papers, of which 170 focused on the immunopathological features of lupus.

*Professor Amoura is a member of the Lupus Academy Steering Committee and has been involved in the planning and development of the 7th Annual Meeting programme and materials.*

#### **Financial Disclosures**

**Grants/Research:** Amgen;

Actelion; BMS; GSK; Lilly; Roche; Teva

**Consultant/Advisor:**

Amgen; BMS; Grifols; GSK; Lilly

**Speaker's Bureau:**

AstraZeneca; GSK



### **Professor Simone Appenzeller, MD, PhD**

University of Campinas (UNICAMP), Brazil

Professor Appenzeller holds a degree in Medicine (1999), a PhD (2006) from the University of Campinas (UNICAMP), Brazil, a postdoctoral degree from McGill University, Canada (2006–2008) and Stavanger Hospital, Norway (2008–2009). She is Associate Professor of the Rheumatology Department, School of Medical Sciences, UNICAMP, and is currently Research Productivity Scholar at CNPq (level 1D). She is also Coordinator of the Rheumatology Unit, Coordinator of the undergraduate programme of the Department of Clinical Medicine, Coordinator of the school of Medical Sciences' Child and Adolescent Health post-graduation program and Clinical Director of the Hospital of UNICAMP.

Professor Appenzeller has supervised 34 undergraduates, 12 doctorates, 10 masters and 1 post-doctorate, had 170 complete articles published in indexed journals and received several awards. She is Editor in Chief of *Advances in Rheumatology* (former *Brazilian Journal of Rheumatology*) and member of international editorial boards (*Autoimmunity Reviews*, *Lupus*).

Professor Appenzeller's experience in medicine focuses on rheumatology and paediatric rheumatology, mainly with central nervous system involvement.

#### **Financial Disclosures**

None





**Professor Eloisa Bonfá, MD, PhD**

University of São Paulo Medical School, São Paulo, Brazil

Eloisa Bonfá is the Physician-in-Chief of the Rheumatology Division of São Paulo Medical School, the largest tertiary referral center for autoimmune rheumatic disorders of Latin America, where she was re-elected as the Clinical Director for 4 years.

association of anti-ribosomal P antibodies and lupus membranous nephritis. More recently she has published several papers on vaccine immunogenicity and safety in autoimmune disorders.

She graduated at the University of São Paulo Medical School, Brazil and she undertook specialist training in Rheumatology in the same University followed by a 4 year rheumatology research fellowship at the Hospital for Special Surgery, New York, USA, under the supervision of Professor Keith Elkon. She has published almost 300 original papers indexed in PubMed and several book chapters.

**Financial Disclosures**

None

Professor Bonfá's main clinical and research interest is systemic lupus erythematosus and autoimmunity, with relevant contribution in the field of autoantibodies and original contribution regarding the association of anti-ribosomal P antibodies with psychiatric manifestation of lupus and the first "*in vitro*" demonstration of the arrhythmogenic potential of purified Ro/SSA antibodies. She also has described the



**Professor Ian Bruce, MD, FRCP**

University of Manchester, UK

Ian Bruce is a National Institute of Health Research (NIHR) Senior Investigator and Professor of Rheumatology at the Arthritis Research UK Centre for Epidemiology, Centre for Musculoskeletal Research, University of Manchester. He is Director of The NIHR Manchester Biomedical Research Centre. Professor Bruce qualified in medicine from Queen's University Belfast in 1988 and gained his MRCP in 1991. He trained in medicine and rheumatology in Northern Ireland and completed his MD thesis on the pathogenesis of systemic vasculitis in 1995. He was the Geoff Carr Lupus Fellow at the University of Toronto, before moving to Manchester in 1998.

Professor Bruce is immediate past Chair of the Systemic Lupus International Collaborating Clinics (SLICC), a member of the British Isles Lupus Assessment Group (BILAG) and leads the BILAG Biologics Register, a UK-wide register that includes over 800 patients with systemic lupus erythematosus (SLE) treated with biological agents. He is also Chief Investigator in the MASTERPLANS Consortium, an MRC-funded SLE Stratified Medicine Consortium. He participates in a number of national and international multicentre studies that are seeking to refine our understanding of SLE and serves on Data Safety Steering Committees in several commercial and academic clinical trials. Professor Bruce's research is focused on the association between inflammatory rheumatic diseases and premature atherosclerosis/coronary heart disease as well as stratified medicine in SLE.

**Financial Disclosures**

**Grants/Research:**

Genzyme Sanofi; GSK; UCB

**Consultant/Advisor:** GSK;

AstraZeneca/Medimmune; Eli Lilly; Merck Serono; UCB

**Speaker's Bureau:**

AstraZeneca/Medimmune; GSK; UCB

## Biographies



**Professor Ricard Cervera, MD, PhD, FRCP**  
Hospital Clinic, Barcelona, Catalonia, Spain

*Professor Cervera is a member of the Lupus Academy Steering Committee and has been involved in the planning and development of the 7th Annual Meeting programme and materials.*

### Financial Disclosures

None

Ricard Cervera is co-Founder and Head of the Department of Autoimmune Diseases at Hospital Clinic, Barcelona. He is also leader of the Research Team on Systemic Autoimmune Diseases at the Institut d'Investigacions Biomediques August Pi i Sunyer (IDIBAPS) and Professor at the University of Barcelona where he coordinates the Masters Course on Autoimmune Diseases. He qualified in medicine in 1983 from the University of Barcelona and received his PhD in 1988 for his thesis on anticardiolipin antibodies. He spent 2 years at the Lupus Research Unit at The Rayne Institute, St Thomas' Hospital, London, UK.

Professor Cervera is an Associate Editor of the journal *Lupus Science & Medicine* and is on the Editorial Boards of 20 medical journals. He is Founder and Member of the Board of the European Lupus Society and past-coordinator of the European Working Party on Systemic Lupus Erythematosus (Euro-Lupus Group) (1991–2008) and of the European Forum on Antiphospholipid Antibodies (2009–2017). He is Chairman of the Medical Advisory Board of the Catalan Association

of Lupus Patients and Medical Advisor to Lupus Europe. He chaired the 6th, 8th and 11th International Congresses on Autoimmunity, the 1st, 2nd and 5th Latin-American Congresses on Autoimmunity, the 5th Meeting of the European Forum on Antiphospholipid Antibodies and the 8th European Lupus Congress.

Professor Cervera's research interests include clinical and epidemiological aspects of systemic autoimmune diseases, particularly SLE and antiphospholipid syndrome, with special focus on its 'catastrophic' variant. He has presented over 300 invited lectures and published more than 800 scientific papers (H-factor, 67), including original articles in the *New England Journal of Medicine*, *The Lancet*, *Annals of Rheumatic Diseases*, *Arthritis & Rheumatism*, *American Journal of Medicine* and *Medicine (Baltimore)*. He is co-Editor of 25 books, including 'The Antiphospholipid Syndrome', 'Vascular Manifestations of Systemic Autoimmune Diseases' and 'Diagnostic Criteria in Autoimmune Diseases'.



**Dr Adriana Danowski, MD, MSc**  
Hospital Federal dos Servidores do Estado, Rio de Janeiro, Brazil

Dr Adriana Danowski completed her internal medicine training and rheumatology fellowship at Universidade Federal do Rio de Janeiro, Brazil in 2001, and subsequently completed her lupus fellowship at Johns Hopkins University, Maryland, USA. She obtained her master's degree in internal medicine/rheumatology in 2005.

She joined the Department of Rheumatology at Hospital Federal dos Servidores do Estado in 2007, where she coordinates the lupus clinic. The cohort of systemic lupus erythematosus (SLE) patients has been followed longitudinally since 2008, and the cohort database already contains over 600 patients.

Dr Danowski has been a member of the Thrombophilias Committee of the Brazilian Society of Rheumatology since 2009. She was also a member of the Task Force on Antiphospholipid Syndrome (APS) Treatment Trends and the Non-criteria APS Manifestations, both published in *Autoimmunity Reviews*.

Dr Danowski has published many articles and book chapters and is actively involved in training residents and rheumatology fellows at her lupus clinic. Her major clinical and research interest is on SLE as well as on APS.

### Financial Disclosures

None



## Professor Andrea Doria, MD

University of Padova, Italy

*Professor Doria is a member of the Lupus Academy Steering Committee and has been involved in the planning and development of the 7th Annual Meeting programme and materials.*

### Financial Disclosures

**Consultant/Advisor:** GSK; Lilly; Pfizer; Roche

Andrea Doria is Professor of Rheumatology and Head of the Unit of Connective Tissue Disease and Rare Rheumatic Diseases, Division of Rheumatology, Department of Medicine, University of Padua, Italy.

Professor Doria received his medical degree and qualification in Rheumatology from the University of Padua. He was Council member of the Italian College of Rheumatology (CRO) between 1999 and 2005 and a Council member of the Italian Society of Rheumatology (SIR) from 2007 to 2010 and from 2013 to present. He is also a member of American College of Rheumatology (ACR).

Professor Doria has organised over ten international conferences on autoimmunity and was involved as “expert” in the European League Against Rheumatism (EULAR) Standing Committee for the development of clinical and therapeutic recommendations: (1) EULAR recommendations for the management of systemic lupus erythematosus (SLE)—Assessment of the SLE patient (2008–2009); (2) EULAR recommendations for the management of SLE Part II—Neuropsychiatric disease (2008–2009); (3) Joint EULAR and European Renal Association-European Dialysis and Transplant Association (EULAR/ERA-EDTA) recommendations for the management of adult and paediatric lupus nephritis (2012). Professor Doria is a member of the Lupus Academy Steering Committee and co-Chaired the 4th Annual Meeting held in Rome 27th February to 1st March 2015. He was the chair of the 10th European Lupus Meeting, held in Venice (Italy) 5–8th October 2016.

Professor Doria is on the Editorial Boards of several rheumatology and immunology journals, including *Lupus*, *Autoimmunity*, *Clinical and Experimental Rheumatology*, *Autoimmunity Reviews*, *Journal of Autoimmunity*, *Experimental Biology and Medicine*, *Rheumatology Reports*, *Journal Autoimmunity Highlights* and *Reumatismo* (the official journal of Italian Society of Rheumatology).

He has authored over 300 ISI publications on SLE and other connective tissue diseases. These include clinical studies describing new manifestations or subgroups of autoimmune disorders, prognostic risk factors, diagnostic tests and therapeutic interventions, as well as immunochemical studies that evaluate autoantibodies, epitopes and complementary epitopes of autoantigens. In addition, he has authored and co-authored three books, over 90 book chapters and conference proceedings, and over 700 abstracts for national and international conferences.

Professor Doria has long-standing experience of the clinical management of patients with connective tissue diseases. The Unit in which he works is a tertiary referral rheumatology centre within Italy, for the diagnosis and management of patients affected with systemic connective diseases. In addition, he has expertise in the management and follow-up of pregnant patients with systemic rheumatic diseases. Professor Doria has also trained over 30 students in Rheumatology.

## Biographies



**Professor Thomas Dörner, MD**  
Charite University Hospitals Berlin, Germany

*Professor Dörner is a member of the Lupus Academy Steering Committee and has been involved in the planning and development of the 7th Annual Meeting programme and materials.*

### Financial Disclosures

**Grants/Research:** Chugai/Roche; Janssen/JNJ; Novartis

**Consultant/Advisor:** Chugai/Roche; Janssen/JNJ; Lilly; MSD; Novartis

Thomas Dörner is a board certified Rheumatologist and Professor of Rheumatology and Hemostaseology at Charite University Hospitals, Berlin, and group leader at the German Research Center of Rheumatology, Berlin (DRFZ). He qualified in medicine in 1990 at Charite University Hospitals, Berlin, and received his board certification in internal medicine in 1995 before undertaking a postdoctoral fellowship at the University of Texas, Southwestern Medical Center at Dallas, where he researched delineating molecular aspects of B-cell receptor gene usage in autoimmune diseases.

Professor Dörner has received a number of international and national awards, including the Senior Scholar Award of the American College of Rheumatology, the H Schultze Award of the German League Against Rheumatism, the Randy Fischer Prize for Excellence in flow cytometry and the Schoen Award of the German Society of Rheumatology.

Professor Dörner has served as a member of Editorial Boards of leading journals in rheumatology and immunology, including *Arthritis & Rheumatism*, *Arthritis Research & Therapy*, *Annals of the Rheumatic Diseases*, *Global Arthritis Research Network (GARN)*, *Current Reviews in Rheumatology*, *the Brazilian Journal of Rheumatology*, *the European Journal of Immunology*, *Lupus Science & Medicine*, and *Rheumatology Reviews*.

Professor Dörner has led various clinical trials on rheumatic diseases, including systemic lupus erythematosus, Sjogren's syndrome, rheumatoid arthritis, and seronegative spondyloarthropathies. His research interests focus on the characterisation of disturbances of humoral autoimmunity and abnormalities of B cell subsets in the blood versus tissue (lupus, neonatal lupus syndromes, Sjogren's syndrome), exploring innovative therapeutic approaches with particular focus on B-cell directed therapy as well as improving diagnostic tools in autoimmune diseases.



**Professor Richard Furie, MD**  
Hofstra Northwell School of Medicine, New York, USA

*Professor Furie is a member of the Lupus Academy Steering Committee and has been involved in the planning and development of the 7th Annual Meeting programme and materials.*

### Financial Disclosures

**Grants/Research:** Astra Zeneca/Medimmune; BMS; EMD Serono; Genentech/Roche; GSK

**Consultant/Advisor:** Astra Zeneca/Medimmune; BMS; EMD Serono; Genentech/Roche; GSK; Novartis

Richard Furie is Chief of the Division of Rheumatology at Northwell Health, New York, and Professor of Medicine at the Hofstra Northwell School of Medicine. He is a rheumatologist whose activities, for several decades, have focused on patient care, physician education and clinical research in the area of anti-rheumatic drug development. He directs The Program in Novel Therapeutics—the Health System's clinical research programme in musculoskeletal disease. He also directs the hospital's SLE and Autoimmune Disease Treatment Center, which has become internationally recognised for its role in the development of new therapies for SLE.

Regarded as one of the senior rheumatologists in the New York metropolitan area, Professor Furie has been on the Boards of Directors of the local chapters of the Arthritis Foundation and the Lupus Alliance of America and is a member of the Medical-Scientific Advisory Council of the Lupus Foundation of America as well as its Lupus News Editorial Board. He has also served on the Medical and Scientific Advisory Board of the SLE Foundation as well as the Alliance for the Lupus Research Scientific Advisory Board, and continues to volunteer in the activities of the merged foundations, now known as the Lupus Research Alliance. Professor Furie has served on many committees of the American College of Rheumatology for nearly 20 years.



**Professor Bevra Hahn, MD**  
University of California, Los Angeles, USA

*Professor Hahn is co-Chair of the Lupus Academy (2018) and has been involved in the planning and development of the 7th Annual Meeting programme and materials.*

#### Financial Disclosures

**Grants/Research:** BMS  
**Consultant/Advisor:** BMS;  
Celgene; Janssen

Bevra Hahn is Distinguished Professor of Medicine (Emeritus, recalled for part time work) in the Division of Rheumatology at the University of California, Los Angeles (UCLA). She received her medical degree and Rheumatology training at Johns Hopkins University School of Medicine in Baltimore, Maryland. She was Chief of Rheumatology at UCLA for 30 years.

Professor Hahn has published research in clinical investigations and basic studies of immune tolerance (including the invention of a tolerizing peptide) and T-cell biology as they apply to systemic lupus erythematosus (SLE). For these works she and her colleagues have received

several awards, including the Carol-Nachman International Award for Rheumatology Research, awards from the British Society for Rheumatology and the Dutch Society for Rheumatology, the James Klinenberg Medal of the US Arthritis Foundation, an award from the Canadian Rheumatism Society, and the Gold Medal of the American College of Rheumatology (ACR). Professor Hahn was President of the ACR (1999–2000). She is co Editor, with Daniel Wallace, of the ‘Dubois’ Lupus Erythematosus textbook and is first author of the ACR guidelines for the management of lupus nephritis. She continues to work in clinical and basic research devoted to the study of SLE.



**Professor David Isenberg, MD, FRCP, FAMS**  
University College London, UK

*Professor Isenberg is a member of the Lupus Academy Steering Committee and has been involved in the planning and development of the 7th Annual Meeting programme and materials.*

#### Financial Disclosures

**Consultant/Advisor:**  
Anthera; Celgene; Lilly;  
Merck Serono; UCB; XTL  
Bio

David Isenberg is the Arthritis Research UK Diamond Jubilee Professor of Rheumatology at University College London (UCL). He graduated from St. Bartholomew's Hospital, London, in 1973, and trained in general medicine, rheumatology, neurology, psychiatry and gastroenterology, becoming a Research Fellow at UCL/The Middlesex Hospital in 1979. He was awarded his MD in 1984, based on his studies of myositis. During a year of research at Tufts University, Boston, he became interested in autoantibody structure/function and origin. He was appointed Consultant Rheumatologist in 1984, Professor in 1991 and became the arc Diamond Jubilee Chair of Rheumatology at UCL in 1996. He has fellowships of both the Royal College of Physicians and the Academy of Medical Sciences.

Professor Isenberg is on the Editorial Boards of five journals, including the *Journal of Rheumatology*. He is Chair of the British Isles Lupus Assessment Group and Lupus UK's Research Committee and was Chair of the Systemic Lupus International Collaborating Clinics group (1998–2003). During the past 20 years, Professor Isenberg has undertaken many roles at Arthritis Research UK and currently sits on the Executive Board.

He is past-President of the British Society for Rheumatology (2004–2006) and he chaired the Society's Biologics Register Committee for 5 years (2006–2011). Professor Isenberg was the 2010 recipient of the Evelyn V. Hess Prize from the Lupus Foundation of America for his contribution to lupus research and treatment. He has authored over 550 original articles, 275 reviews/chapters and 20 books, many on topics related to lupus.

Professor Isenberg's principal clinical interests are the development of disease activity and damage assessment tools in patients with lupus. His specialist interest is autoimmune rheumatic diseases, notably systemic lupus erythematosus, Sjogren's syndrome, myositis and antiphospholipid antibody syndrome. In 2016 he became a Master of the American College of Rheumatology.



## Biographies



### Financial Disclosures

None

### Professor Judith James, MD, PhD

Oklahoma Medical Research Foundation, Oklahoma, USA

Judith James, MD, PhD, is Chair of the Arthritis and Clinical Immunology Program and holds the Lou Kerr Chair in Biomedical Research at the Oklahoma Medical Research Foundation. Professor James is also the Associate Vice Provost for Clinical and Translational Science and Professor of Medicine and Pathology at the University of Oklahoma Health Sciences Center.

Professor James' research interests focus on understanding the aetiology and pathogenesis of lupus, Sjogren's syndrome and related disorders, the evolution and pathogenic mechanisms of autoantibodies in systemic rheumatic disease and the interplay of genetic risk and environmental responses in systemic autoimmunity. Her work has made seminal contributions to understanding how autoimmune diseases start and the concept of humoral epitope spreading. She has published over 270 articles in journals such as the *New England Journal of Medicine*, *Nature Medicine*, *Journal of Experimental Medicine*, *Annals of Rheumatic Diseases* and *Arthritis and Rheumatology*. Professor James currently serves as the Principal Investigator for several large, multi-investigator National Institutes of Health (NIH)-funded grants, such as the U54 Oklahoma Shared Clinical & Translational Resources from the National Institute of General Medical Sciences (NIAMS), U19 Autoimmunity Center of Excellence from the National Institute of Allergy and Infectious Diseases, and P30 Rheumatic Disease Research Cores Center from NIAMS.

Professor James has conducted lectures for the American College of Rheumatology, International Systemic Lupus Erythematosus Meetings, and others. Professor James has received several prestigious awards including the Presidential Early Career Award for Scientists and Engineers and the Dubois' Award from the American College of Rheumatology. She is a member of NIAMS Council with the NIH and recently served as the elected Secretary-Treasurer of the American Society of Clinical Investigation. She has served on several other NIH advisory committees and chaired an NIH Roundtable regarding preclinical autoimmunity. Professor James also was selected to provide testimony supporting the NIH at the Nobel Laureates' Hearing for the US Senate Appropriations Subcommittee. Professor James received her medical degree and PhD in Immunology from the Oklahoma Health Sciences Center and is a board certified adult Rheumatologist. She continues to practice adult rheumatology, focusing on systemic lupus erythematosus, incomplete lupus, Sjogren's syndrome and related rheumatic diseases.



### Financial Disclosures

None

### Professor Guilherme de Jesús, MD, PhD

State University of Rio de Janeiro (UERJ), Brazil

Guilherme de Jesús is a Professor of Obstetrics in State University of Rio de Janeiro (UERJ) and attending obstetrician in Fernandes Figueira Institute (FIOCRUZ). He has a post-graduate degree in Fetal Medicine (FIOCRUZ) and Masters degree in Medical Sciences – emphasis in Rheumatology (UERJ). He is also a member of the Steering Committee of Antiphospholipid Syndrome Alliance for Clinical Trials and International Networking (APS ACTION) and a member of International Stillbirth Association (ISA).

In State University of Rio de Janeiro Professor Guilherme de Jesús works in a referral centre for prenatal care for pregnant patients with autoimmune diseases, which includes 150 patients every year. This prenatal care has a multidisciplinary approach, as pregnant women are seen by obstetricians and rheumatologists at the same time. This prenatal care is the source of several publications and book chapters about pregnancy and autoimmune diseases, mainly in lupus and antiphospholipid syndrome.



**Professor Munther Khamashta, MD, PhD, FRCP**  
Dubai Hospital, Dubai, UAE

*Professor Khamashta is a member of the Lupus Academy Steering Committee and has been involved in the planning and development of the 7th Annual Meeting programme and materials.*

#### Financial Disclosures

None

Munther Khamashta is Head of the Lupus Clinic at Dubai Hospital, UAE. He studied medicine in Barcelona and internal medicine in Madrid, Spain, where he developed an interest in connective tissue diseases and received his PhD. He was awarded the MRCP in 1999 and FRCP in 2002. He joined the Lupus Unit in London 30 years ago and has been instrumental in developing it into an internationally recognised tertiary centre receiving referrals from all over the UK. He is currently on sabbatical setting up lupus services at Dubai Hospital, United Arab Emirates.

Professor Khamashta has served on the Editorial Boards of many journals, including *Clinical & Experimental Rheumatology*, *Lupus*, and *Current Rheumatology Reviews*. He is a member of several professional societies, including the International Society of Internal Medicine, the American College

of Rheumatology and the Spanish Society of Rheumatology. He is a member of the Steering Committee of the International Board on the Study of Antiphospholipid Antibodies and of the Steering Committee of the International Advisory Board for Systemic Lupus Erythematosus. He is a founding member of the Lupus Academy and APS-ACTION. He has received several international awards for his work, including the European League Against Rheumatism and International League Against Rheumatism prizes.

Professor Khamashta has a strong research interest in lupus and connective tissue diseases, with a special interest in pregnancy and antiphospholipid syndrome. He has published extensively in lupus, Hughes syndrome and related areas, with more than 700 original papers.



**Professor Sindhu Johnson, MD, PhD, FRCP**  
University of Toronto, Canada

#### Financial Disclosures

None

Sindhu Johnson is Associate Professor of Medicine and a Clinical Epidemiologist in the Division of Rheumatology at the University Health Network and Mount Sinai Hospitals, and Faculty of Medicine, University of Toronto. She is Director of the Toronto Scleroderma Program.

Professor Johnson received her medical degree from Memorial University of Newfoundland, Canada. She completed her Internal Medicine and Rheumatology training at the University of Toronto, Canada. She completed a PhD in Clinical Epidemiology at the Institute of Health Policy, Management and Evaluation, University of Toronto, Canada.

Professor Johnson is the American College of Rheumatology (ACR) lead for the development of new classification criteria for systemic lupus erythematosus, supported by both the European League Against Rheumatism (EULAR) and the

ACR. She is co-Chair of the ACR Classification and Response Criteria subcommittee overseeing development of these criteria across rheumatic diseases. In addition, Professor Johnson was a methodologic lead for the development of the 2013 ACR – EULAR classification criteria for systemic sclerosis and is currently the co-Chair for the development of systemic sclerosis subset criteria.

Professor Johnson is or has been on the Editorial Boards of several rheumatology journals including *Arthritis Care and Research*, the *Journal of Rheumatology*, the *Journal of Scleroderma and Related Disorders* and *Rheumatology Oxford*. She has authored 120 peer-reviewed publications. She has been awarded 3.5 million dollars in peer-reviewed operating grants and has been awarded continuous salary support from the Canadian Institutes of Health Research for over a decade.

## Biographies



### **Professor Evandro Klumb, MD, PhD**

State University of Rio de Janeiro, Brazil

#### **Financial Disclosures**

None

Evandro Klumb is Professor of Rheumatology at the Department of Internal Medicine, State University of Rio de Janeiro (UERJ), Brazil. Professor Klumb has completed his Internal Medicine and Rheumatology Residency Program at the Hospital Federal do Servidores do Estado. Subsequently he completed his Master's degree in Nephrology and PhD in Medical Sciences, both at UERJ.

He has been a titular member of the Sociedade de Reumatologia do Rio de Janeiro since 1990 and is former President (2013-2014). He is also a titular member of the Sociedade Brasileira de Reumatologia (SBR) and member of the SBR SLE Commission, which was under his coordination between 2012 and 2015. Professor Klumb has been a member of the UERJ staff since 1991 and the Head of the Rheumatology Department since 2012. Since 1998, he has coordinated the UERJ SLE nephritis clinic, which is his major area of interest.

Professor Klumb is on the Editorial Board of *Advances in Rheumatology* (the official journal of Brazilian Society of Rheumatology) and contributes as editor for different Rheumatology Journals. He has authored publications mostly on SLE and other connective tissue diseases including clinical studies on infection, vaccination, pregnancy, drug treatment adherence and genetics. Professor Klumb has also trained over 30 students in Rheumatology, including Residents, Masters and PhDs.





**Professor Liz Lightstone, PhD, FRCP**  
Imperial College London, UK

#### Financial Disclosures

Grants/Research: Roche  
Consultant/Advisor:  
Aurinia, GSK

Liz Lightstone is Professor of Renal Medicine at the Centre for Inflammatory Disease, Department of Medicine, Imperial College London and an Honorary Consultant Renal Physician at the Imperial College Healthcare NHS Trust Renal and Transplant Centre (ICHNT RTC). After an undergraduate degree at Cambridge, she graduated in medicine from the University of London in 1983 and trained in nephrology at the Royal Postgraduate Medical School. She won a Medical Research Council (MRC) Training Fellowship in 1988 to undertake her PhD in immunology at University College London. This was followed by a MRC Clinician Scientist Fellowship at the Royal Postgraduate Medical School. She was appointed Senior Lecturer and Honorary Consultant Physician in 1995, Reader in 2011 and promoted to Professor in 2014.

Professor Lightstone has held major roles in undergraduate and postgraduate medicine at Imperial College, in particular as Director of the Academic Foundation Programme within the North West Thames Foundation School from 2009 to 2015.

Having started out in basic research, Professor Lightstone's research is now focused on Lupus Nephritis, as well as Pregnancy in Women with Kidney Disease. Together with colleagues in the ICHNT RTC, she pioneered the use of steroid-minimising regimens in lupus nephritis. She was Chief Investigator on the international multicentre randomised RITUXILUP trial. She is particularly interested in developing better ways of predicting outcomes, not least by improving adherence to therapy and using an 'omics approach to analysing renal biopsies. She is a coauthor of the EULAR guideline on the management of Lupus Nephritis (2012) and the more recent British Society of Rheumatology guideline on the management of lupus in adults (2017).

Professor Lightstone is also recognised for her wider expertise in glomerulonephritis and is now the global co-Chair, along with Professor Dan Cattran, of the Standardised Outcomes in Nephrology (SONG)-GN initiative which aims to define core outcome criteria to be included in all studies of GN – these outcomes are generated and evaluated by both healthcare professionals and patients. She also co-chairs, with Professor David Jayne, the UK Kidney Research Consortium Glomerulonephritis Clinical Study group, which developed the recently successful bid to the National Institute for Health Research for funding for a trial of rituximab in minimal change nephropathy and primary focal segmental glomerulosclerosis.

Professor Lightstone was the inaugural National Coordinator of the Pregnancy and Chronic Kidney Disease Rare Disease group and pioneered the use of tacrolimus in the treatment of lupus nephritis in pregnancy and demonstrated its safety for women with lupus nephritis who are breastfeeding.

Professor Lightstone's main clinical interests are in lupus nephritis (she jointly manages a combined renal/rheumatology lupus clinic following over 400 patients with lupus nephritis) and the management of women with kidney disease in pregnancy—she established and runs a renal obstetric clinic and a pre-pregnancy counselling clinic and her advice is sought nationally and internationally for the management of challenging cases in these areas.

## Biographies



### Financial Disclosures

None

### Professor Claudia Saad Magalhães, MD, PhD

Botucatu Medical School, Sao Paulo State University (UNESP), Botucatu-SP, Brazil

Claudia Saad Magalhães is Professor of Pediatrics and Head of The Pediatric Rheumatology Unit at Hospital das Clinicas de Botucatu, Sao Paulo State University (UNESP). She is a board-certified Pediatric Rheumatologist working on patients, care, physician education and clinical research, since 1988. She graduated in Medicine (1978) and trained in paediatrics and clinical immunology at Ribeirao Preto Medical School, University of Sao Paulo (1984). She received her PhD at Sao Paulo State University (UNESP) (1993) and undertook post-doctoral research fellowships at The Paediatric and Adolescent Rheumatology unit, Great Ormond Street Hospital, NHS Trust, London UK (1999) and The IRCCS Giannina Gaslini, Genoa, Italy (2006), collaborating in Pediatric Rheumatology multicenter research within PRINTO network (Pediatric Rheumatology International Trials Organization). She has been the PRINTO national coordinator since 1999 and advisory council member since 2012.

Professor Saad Magalhães participated as investigator and member of the consensus formation team to identify preliminary core sets of outcome variables for disease activity and damage assessment in childhood systemic lupus erythematosus (2001), the provisional criteria for the evaluation of response to therapy (2003), prospective validation of the improvement (2006) and disease flare criteria (2010). She coordinated the adaptation and validation of the Portuguese Simple Measure of Impact of Lupus Erythematosus in Youngsters (SMILEY®) in Brazil (2012). She is an active member of the Brazilian Childhood Systemic Lupus Erythematosus Study Group (2013), having published 100 peer-reviewed papers, 25 book chapters and supervised and trained over 50 fellows in Pediatric Rheumatology.



### Financial Disclosures

None

### Professor Loreto Massardo, MD

San Sebastian University, Santiago, Chile

Loreto Massardo is Professor of Rheumatology at the Centre for Cell Biology and Biomedicine, Faculty of Science and Medicine, San Sebastian University, Santiago, Chile.

Professor Massardo received her medical degree and specialisation in Rheumatology from the Pontificia Universidad Católica de Chile, she also studied Rheumatology under Paul A. Dieppe MD, FRCP at the University of Bristol, UK and was a visiting clinician at Mayo Clinic, Rochester, USA. She is a member of the Chilean Society for Rheumatology and an international fellow of the American College of Rheumatology (ACR). Professor Massardo is a founding member of Grupo Latino Americano de Estudio de Lupus (GLADEL) and Grupo Latino Americano de Estudio de Artritis Reumatoide (GLADAR) and has organised international conferences, headed the ACR annual meeting of Latin American Study group 2015-2017 and given lecture throughout Latin America at the Pan American League of Associations of Rheumatology (PANLAR) meetings.

Professor Massardo is an experienced clinical rheumatologist who worked at the National Health Service Dr. Sótero del Río Hospital Santiago, Chile 1981-1992 and the Pontificia Universidad Católica de Chile in Santiago, Chile 1985-2017, managing patients affected with connective tissue diseases and participating in pregraduate medical student teaching and training of postgraduate students in Rheumatology. Since 2017 she has been working on research in anti-ribosomal P antibodies in lupus as a full professor at the San Sebastian University in Santiago.

Professor Massardo has co-authored over 70 ISI publications on systemic lupus erythematosus (SLE) and rheumatoid arthritis including the findings on the neuronal surface target of anti-ribosomal P antibodies and its association with cognition, clinical features of lupus patients, quality of life in SLE, shared epitope on Chilean patients with RA and an educational website for RA patients and their families. In addition she has co-authored chapters in six books.



**Professor Sandra Navarra, MD, FPCP, FPRA**  
 University of Santo Tomas, Manila, Philippines

*Professor Navarra is a member of the Lupus Academy Steering Committee and has been involved in the planning and development of the 7th Annual Meeting programme and materials.*

**Financial Disclosures**  
 None

Professor Sandra Navarra is Professor and Head of Rheumatology at University of Santo Tomas, Manila, Philippines. She served as Secretary-General, Head of the Education Committee, chaired the special interest group on systemic lupus erythematosus of the Asia Pacific League of Associations for Rheumatology (APLAR), and was past-President of the Philippine Rheumatology Association. She founded the Lupus Foundation of the Philippines where she has served as Medical Adviser. Currently President and CEO of the Rheumatology Educational Trust Foundation Inc. (RETFI), she is the prime mover of the Lupus Inspired Advocacy (LUISA) Project for lupus education and research, and the People Empowerment for Arthritis and Lupus (PEARL) Movement for lay education and medical assistance programmes. Professor Navarra is a founding member of the Lupus Academy Steering Committee, and a founding and executive board

member of both Asia Pacific Lupus Collaboration (APLC) and Asian Lupus Nephritis Network (ALNN).

Professor Navarra is an experienced clinical trials investigator and has published widely in the field of lupus and other rheumatic diseases. She is a well-known lecturer in a broad range of topics in rheumatology and has received several university and national awards for contributions to education and research. She has organised several national and regional educational meetings including the Ten Topics in Rheumatology – Asia (November 2009), the first Asian Lupus Summit (November 2012), the Asian Lupus Summit by the Lupus Academy (March 2014), the Lupus Nephritis Forum (July 2015), the Lupus Academy Roadshow Meetings (May 2016 and November 2017) and the “Lupus for the Internist” postgraduate courses (April 2018, May 2018), all held in the Philippines.



**Professor Bernardo Pons-Estel, MD**  
 Regional Center for Autoimmune and Rheumatic Diseases (CREAR) and the Cardiovascular Institute of Rosario, Argentina

*Professor Pons Estel is a member of the Lupus Academy Steering Committee and has been involved in the planning and development of the 7th Annual Meeting programme and materials.*

**Financial Disclosures**  
 None

Bernardo A. Pons-Estel is Head of the Regional Center for Autoimmune and Rheumatic Diseases (CREAR), and the Cardiovascular Institute of Rosario (ICR), Argentina. He received his medical degree from the National University of Rosario and went on to train in Rheumatology, first in Argentina (Rosario) and thereafter the USA, where he was a fellow at New York University (Bellevue Hospital and the Irvington House Institute, New York) and at the University of Missouri Cancer Research Center, Columbia.

Professor Pons-Estel is the main coordinator for the Latin American Group for the Study of Systemic Lupus Erythematosus (GLADEL), the Genomic Study of Latin-American Patients with SLE (GLA-GENLES) and the Latin American Group for the Study of Rheumatic Diseases in Indigenous People (GLADERPO).

He is past-President of the Argentinean Rheumatology Society (2011–2013). In 2013, he chaired the 10th International Congress on SLE, which took place under GLADEL sponsorship in Buenos Aires, Argentina and in 2018 he chaired the Pan-American League of Rheumatology Associations (PANLAR) Congress in Buenos Aires.

Professor Pons-Estel is a council member of the Science and Educational Committee of the Pan-American League of Association for Rheumatology (PANLAR). He is also an active member of the Systemic Lupus International Collaborating Clinics (SLICC), member of the Collaborative Initiatives Working Group (COIN) of the American College of Rheumatology (ACR), member of the Lupus Academy Steering Committee and an International Member of the ACR. Recently, a collaboration between GLADEL and PANLAR materialised, the aim being the development of guidelines for the management of SLE patients from the Latin American subcontinent; Bernardo is an integral part of this collaboration.

## Biographies



**Professor Brad Rovin, MD, FACP, FASN**  
Ohio State University, USA

Professor Brad Rovin is the Director of the Division of Nephrology and Vice Chairman of Medicine for Research at the Ohio State University Wexner Medical Center. He is the Lee A. Hebert Distinguished Professor of Nephrology.

Professor Rovin studies the pathogenesis of glomerular diseases and has a special interest in lupus nephritis. His research has focused on biomarker development for glomerular diseases. He also studies experimental therapeutics in an effort to find new treatments for glomerular diseases. Professor Rovin established a multidisciplinary lupus, vasculitis and glomerulonephritis clinic and directs an advanced fellowship in autoimmune diseases for nephrologists and rheumatologists.

### Financial Disclosures

#### Consultant/Advisor:

Alexion; Aurinia; Biogen; Chemocentryx; Genentech; Biomarin; BMS; EMD Serono; Frazier Life Sciences; Gilead; Lupus Foundation of America; Mallinckrodt; Medimmune; Novartis; Pharmalink; Ra Pharmaceuticals; Retrophin; Rigel

Professor Rovin received his Bachelor of Science in Chemical Engineering from Northwestern University in Evanston Illinois and his Doctor of Medicine from the University of Illinois Medical School in Chicago, Illinois. He completed a residency in Internal Medicine at Barnes Hospital in St. Louis Missouri and a Fellowship in Nephrology at Washington University School of Medicine, St. Louis.



**Professor Dr Matthias Schneider, MD, PhD**  
Heinrich-Heine-University Dusseldorf, Germany

Matthias Schneider is Head of Rheumatology and Hiller Research Unit at Heinrich-Heine-University in Düsseldorf, where he has been a Professor since 1994. He received his MD after training at the Westphalian-Wilhelms-University in Münster. He has qualifications in internal medicine, rheumatology, physical therapy and endocrinology.

Professor Schneider's main research interests are systemic lupus erythematosus (SLE), rheumatology and rheumatic diseases. He has published over 474 papers (H-Index 41).

### Financial Disclosures

None

Professor Schneider has been a Steering committee member of the European Lupus Erythematosus Federation since 1994, Member of the DGRh Committees "Pharmacotherapy" since 1996, was also co-Chairman of the ACR Committee 'Lupus Response' (1999-2006), Chairman of the German Cooperation Multipurpose Arthritis Centres (2002-2010), and President of the European Lupus Society (2016-2018) among many other roles.



**Professor Clovis da Silva, MD, PhD**  
 University of São Paulo, Brazil

#### Financial Disclosures

None

Clovis da Silva is Associate Professor of Pediatrics and Head of the Pediatric Rheumatology and Adolescent Units at the University of São Paulo, Brazil.

Professor Silva graduated from Bahiana Medical School and read Pediatric Rheumatology in the University of São Paulo. He has been a council member of the Brazilian Pediatric Society and Brazilian Society of Rheumatology since 1993 and is a member of Pediatric Rheumatology International Trials Organization (PRINTO).

Professor Silva is the Principle Investigator of the BRAC-SLE (Brazilian Childhood-onset SLE) Registry Group. This is a Brazilian multicentre study, including 1,555 patients with childhood-onset systemic lupus erythematosus (cSLE), focusing on early-onset cSLE, rare clinical manifestations, autoantibodies profile, infections, malignancy, disease damage and mortality.

Professor Silva has recently been involved as “expert” in the Consensus of the Brazilian Society of Rheumatology for the diagnosis, management and treatment of lupus nephritis (2015), American College of Rheumatology Provisional Criteria for Global Flares in cSLE (2017) and GLADEL-PANLAR Latin American Guidelines for the Treatment of SLE (2018).

Professor Silva has authored over 320 iSi publications on cSLE and other pediatric and adult connective disorders. The 140 SLE manuscripts include pathogenesis (environmental factors and primary immunodeficiencies), clinical, laboratorial, reproductive health, outcome and interventional studies. Moreover, he has written three Pediatric Rheumatology books, 68 book chapters and over 600 abstracts for national and international congresses. He has also trained over 95 fellows in Pediatric Rheumatology.



**Professor Murray Urowitz, MD**  
 University of Toronto, Canada

*Professor Urowitz is Programme Director and co-Chair of the Lupus Academy (2018) and has been involved in the planning and development of the 7th Annual Meeting programme and materials.*

#### Financial Disclosures

None

Murray Urowitz has been a senior staff rheumatologist at the Toronto Western Hospital and Senior Scientist at the Krembil Research Institute. He is currently Professor of Medicine at the University of Toronto and Director of the Centre for Prognosis Studies in the Rheumatic Diseases and the University of Toronto and the Lupus Clinic at the Toronto Western Hospital.

Professor Urowitz established the University of Toronto Lupus Clinic and Lupus Databank Research Program in 1970. This extensive longitudinal database is one of the largest such databanks in the world with over 2,000 patients and has allowed for numerous findings which have changed the way lupus is diagnosed and managed. Professor Urowitz has published 401 peer-reviewed papers and 44 book chapters. He has supervised the training of over 150 fellows in rheumatology especially in SLE.

Professor Urowitz was a founding member of the Ontario Lupus Association (now Lupus Ontario). He was President of the Lupus Council of the American Rheumatology Association. He

was a founding member of the Systemic Lupus International Collaborating Clinics (SLICC) group and currently directs the SLICC Registry for Atherosclerosis. In 1995 he was the recipient of the Distinguished Rheumatologist Award of the Canadian Rheumatology Association and in 2009 he was recipient of the Evelyn V. HESS Award for outstanding contributions to lupus research, awarded Lupus Foundation of America. He was awarded the Queen Elizabeth Diamond Jubilee Medal for longstanding contributions to lupus research work in the field of rheumatology and the Charles Mickle Award, presented by University of Toronto Faculty of Medicine for lifetime excellence in medicine and medical education in 2015. He was awarded a Lifetime Achievement Award for commitment to the field of lupus by Lupus Ontario in March 2016.

Professor Urowitz was recipient of the Distinguished Clinical Investigator Award from the American College of Rheumatology (ACR) in November 2017. This prestigious award is presented annually to a clinical investigator who has made outstanding contributions to the field of rheumatology.



## Biographies



*Professor van Vollenhoven is a member of the Lupus Academy Steering Committee and has been involved in the planning and development of the 7th Annual Meeting programme and materials.*

### Financial Disclosures

**Grants/Research:** AbbVie; BMS; GSK; Janssen; Novartis; Pfizer; Sanofi Genzyme; UCB

### Consultant/Advisor:

AbbVie; AstraZeneca; Biotext; BMS; Celgene; GSK; Janssen; Lilly; Novartis; Pfizer; Roche; UCB

### Professor Ronald van Vollenhoven, MD, PhD

Amsterdam Rheumatology and Immunology Center, Reade, VUMC, Amsterdam, Netherlands

Ronald van Vollenhoven is the Director of the Amsterdam Rheumatology and Immunology Center ARC and Chief of the Department of Rheumatology and Clinical Immunology at the AMC and of the Department of Rheumatology at VUMC in Amsterdam, the Netherlands.

He received his MD and PhD degrees from the University of Leiden in The Netherlands. After graduating in 1984 he pursued immunology research at Cornell Medical College in New York, followed by residency (specialty training) in Internal Medicine at the State University of New York at Stony Brook and a fellowship in Rheumatology at Stanford University in Palo Alto, following which he received American Board of Internal Medicine certification in both Internal Medicine and Rheumatology.

From 1993 to 1998 Professor van Vollenhoven held a faculty appointment as Assistant Professor of Medicine in the Division of Immunology and Rheumatology at Stanford University and from 1995 he was the Medical Services Chief and Fellowship Director in that division.

In 1998 Professor van Vollenhoven moved to Stockholm, Sweden, where he worked as a Senior Physician and Chief of the Clinical Trials Unit in the Department of Rheumatology at the Karolinska University Hospital and Associate Professor of Rheumatology; and in 2010, he was appointed as Professor and Chief of the Unit for Clinical Therapy Research, Inflammatory Diseases (ClinTRID) at the Karolinska Institute.

Since 2016 Professor van Vollenhoven is the Director of the Amsterdam Rheumatology and Immunology Center ARC, Professor of Rheumatology at the University of Amsterdam and the VU University, Chief of Rheumatology at both the AMC and VUMC hospitals and Chair of the Rheumatology Research Council at Reade in Amsterdam, all located in Amsterdam, The Netherlands.

Professor van Vollenhoven's research interests focus around the development and systematic evaluation of biological and immunomodulatory treatments for the rheumatic diseases. With his co-workers, he established the Stockholm registry for biological therapies (the STURE database) for this purpose, which supports research projects relating to clinical efficacy, pharmacology, outcomes and pharmacoeconomics. He has been Principal Investigator in many clinical trials of novel therapies in rheumatic diseases and has contributed to a number of important investigator-initiated trials including the SWEFOT, ADMIRE and DOSERA trials. He has published over 300 original papers (H-index: 61), book chapters and reviews and is associate-Editor of Dubois' Lupus Erythematosus (Elsevier, 2014), editor of the textbook Clinical Therapy Research in the Inflammatory Diseases (World Scientific Press, 2015), author of the monograph Biological Therapy of Rheumatoid Arthritis (Springer, 2015) and co-author, with Professor Laurent Arnaud, of the Handbook of Systemic Lupus Erythematosus (Springer, 2017). In 2004, Professor van Vollenhoven was awarded the Scandinavian Research Foundation Prize for excellence in clinical research in rheumatology and he is an honorary member of several rheumatological societies. He is the Editor-in-Chief of *Lupus Science & Medicine*, Chair of the EULAR Visions Advisory Group and of the EULAR Standing Committee Chairs Group, member of many editorial boards, past-Chair of the Swedish Rheumatology Society Professors' Council, co-founder of the IRBIS registry for biologics in SLE, the CERERRA registries, collaboration and the NORD-STAR collaboration for Nordic trials in the rheumatic diseases and the initiator of the Treat-to-Target-in-SLE and DORIS initiatives. Professor van Vollenhoven is married and has two children aged 22 and 18. Outside his professional life he is an avid classical pianist.

[illegible]





**Keynote Lecture:** Phenotyping and Pathogenic Mechanisms in Lupus

**Moderator:** Bevra Hahn (USA)

**Professor Murray Urowitz, MD**

University of Toronto, Canada

## Which lupus is it? Phenotyping lupus in 2018

Systemic lupus erythematosus (SLE) is a complex multisystem disease with diverse phenotypes among patients, which change over time and have variable responses to therapy. As such, the treatment and management of SLE is often challenging. Although there have been ongoing attempts to develop classification criteria, patients may meet specific criteria in many different ways. For example a patient with mucocutaneous manifestations may have acute, subacute or chronic cutaneous lupus, each of which may follow a different course, have different antibody associations and different responses to therapy. Thus better “phenotyping” this patient may facilitate decisions on approaches to treatment and prediction of disease course and outcome. However, phenotyping by organ involvement alone may not be sufficient.

In this presentation I shall describe four approaches to describing a patient with SLE and how each approach has multiple layers that must be considered in the process of diagnosis and determining approaches to therapy. Firstly, patients may be phenotyped according to organ involvement; examples to be presented will include skin, kidney and central nervous system. Secondly, patients can also be phenotyped according to their disease courses, examples to be presented include relapsing remitting, persistently active and prolonged remission. Thirdly, phenotyping according to biomarkers, those clinically useful and those experimental at this time will be discussed. Finally, phenotyping according to common comorbidities will be presented.

### Learning Objectives

- Describe the concept of using different approaches to phenotype SLE patients
- Explain how four approaches can better define a lupus patient and lead to more individualised and thus better management and treatment
- Discuss the importance of setting the outcome of therapy as the specific phenotype targeted rather than on a global disease outcome

## Notes

[illegible]



**Keynote Lecture:** Phenotyping and Pathogenic Mechanisms in Lupus

**Moderator:** Bevra Hahn (USA)

**Professor Thomas Dörner, MD**  
Charite University Hospitals Berlin, Germany

## Understanding pathogenic B-cell functions in SLE: Where are we with new therapeutic targets?

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The pathogenesis of systemic lupus erythematosus (SLE) appears to be complex and is possibly as heterogeneous as the disease itself. However, the majority of data point towards the role of type I interferon and the impact of B cells giving rise to autoreactive plasma cells that produce a plethora of autoantibodies, also involved in the formation of immune complexes. How type I interferon is interconnected with the formation of autoreactive plasma cells, including the role of abnormal T cell activity in SLE, has not been fully delineated.

Recent insights in the role of B cells comprise the diminished function of regulatory B cells,<sup>1</sup> including the reduced capacity of B cell cytokine production upon TLR9 activation<sup>2</sup> and BCR signaling responses.<sup>3</sup> The latter findings build the basis that B cells are considered to be in a post-activation status with reduced responsiveness,

very similar as has been reported for CD8 and CD4 T cells. These observations are in striking contrast to textbook knowledge considering “B cell hyperactivity” as important in lupus pathogenesis. Since peripheral plasmablasts are a key finding of SLE activity described originally by our group<sup>4</sup> and recently characterised as a mixture of systemic and mucosal origin,<sup>5</sup> the data point toward a defect of selection within the germinal centre reaction in SLE, which can also be influenced by type I interferon as well as BAFF/BLys.

Pathogenic considerations provide the basis of innovative therapeutic approaches in SLE directly or indirectly impacting on B/plasma cells, which comprise targeting BAFF/BLys by belimumab, blocking IL12/23 by ustekinumab, Jak1/2 inhibition by baricitinib as well as rituximab in refractory cases.

### Learning Objectives

- Discuss the diminished function of regulatory B cells in the pathogenesis of SLE
- Review the role of peripheral plasmablasts of systemic and mucosal origin as a key finding of SLE activity
- Describe the pathogenic factors guiding the treatment of SLE

## Notes

5. Mei HE, Hahne S, Redlin A, et al. Plasmablasts with a mucosal phenotype contribute to plasmacytosis in systemic lupus erythematosus. *Arthritis Rheumatol*. 2017;69(10):2018–28.



**Keynote Lecture:** Classification Criteria for Lupus

**Moderators:** Bevra Hahn (USA) & Murray Urowitz (Canada)

**Professor Ian Bruce, MD, FRCP**  
University of Manchester, UK

## Evolution of SLE classification criteria

### References

1. Tan EM, Cohen AS, Fries JF, et al. The 1982 revised criteria for the classification of systemic lupus erythematosus. *Arthritis Rheum.* 1982;25(11):1271–7.
2. Hochberg MC. Updating the American College of Rheumatology revised criteria for the classification of systemic lupus erythematosus. *Arthritis Rheum.* 1997;40(9):1725.
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4. Petri M, Orbai AM, Alarcon GS, et al. Derivation and validation of the Systemic Lupus International Collaborating Clinics classification criteria for systemic lupus erythematosus. *Arthritis Rheum.* 2012;64(8):2677–86.

Systemic lupus erythematosus (SLE) is a multisystem autoimmune disease with a wide range of clinical manifestations and having evidence of autoantibody production; the clinical features of SLE do not all need to be present at the same time. In contrast to many clinical conditions such as infection, anti-GBM disease etc., the fundamental nature of SLE remains elusive and ultimately may be a cluster of inter-related syndromes within the connective tissue disease spectrum. All of these present challenges for early diagnosis, prevention and predicting disease evolution over time.

Classification criteria are however necessary for comparative studies, for consistent trial inclusion etc. One challenge is that classification criteria easily morph into diagnostic criteria in inexperienced hands.

A number SLE classification criteria sets have been published since 1971. The 1982 American College of Rheumatology criteria<sup>1</sup> have had considerable evaluation in the field but the 1997 revision<sup>2</sup> was not validated at the time. Other approaches have included classification trees, weighting of criteria etc.,<sup>3</sup> however these did not gain widespread use or acceptance.

The 2012 Systemic Lupus Collaborating Clinics (SLICC) criteria<sup>4</sup> maintained the spirit of the earlier criteria sets and improved face validity by including a wider spectrum of cutaneous and neuropsychiatric features as well as hypocomplementaemia. For the first time, biopsy proven lupus nephritis with a positive autoantibody was developed as stand-alone criteria. The SLICC Criteria have subsequently been shown by other groups to perform well in a range of contexts.<sup>5,6</sup>

What remains with SLICC 2012 and beyond into more recent criteria sets, is our continuing ignorance of the fundamental nature of SLE, whether it is a single entity and the continuing concern that any classification criteria set will still get used as diagnostic criteria. The next 20 years will be spent addressing questions of the fundamental biology of SLE so we can more precisely diagnose, classify, treat and eventually cure or prevent this challenging condition(s).

### Learning Objectives

- Describe the challenges of SLE diagnosis within existing classification criteria
- Discuss how the development of various SLE classification criteria may have gained more acceptance than others
- Explain the importance of using classification criteria in clinical trials and how this translates and compare with clinical practice settings

## Notes

5. Hartman EAR, van Royen-Kerkhof A, Jacobs JWG, Welsing PMJ, Fritsch-Stork RDE. Performance of the 2012 Systemic Lupus International Collaborating Clinics classification criteria versus the 1997 American College of Rheumatology classification criteria in adult and juvenile systemic lupus erythematosus. A systematic review and meta-analysis. *Autoimmun Rev.* 2018;17(3):316–22.
6. Ines L, Silva C, Galindo M, et al. Classification of systemic lupus erythematosus: Systemic lupus International Collaborating Clinics Versus American College of Rheumatology Criteria. A comparative study of 2,055 patients from a real-Life, international systemic lupus erythematosus cohort. *Arthritis Care Res (Hoboken).* 2015;67(8):1180–5.





**Keynote Lecture:** Classification Criteria for Lupus    **Moderators:** Bevra Hahn (USA) & Murray Urowitz (Canada)

**Professor Sindhu Johnson, MD, PhD, FRCP**  
University of Toronto, Canada

## New SLE classification criteria: Beyond SLICC

### References

1. Johnson SR, Goek ON, Singh-Grewal D, et al. Classification criteria in rheumatic diseases: a review of methodologic properties. *Arthritis Rheum.* 2007;57(7):1119–33.
2. Leuchten N, Hoyer A, Brinks R, et al. Performance of antinuclear antibodies for classifying systemic lupus erythematosus: A systematic literature review and meta-regression of diagnostic data. *Arthritis Care Res (Hoboken).* 2018;70(3):428–38.
3. Schmajuk G, Hoyer BF, Aringer M, et al. Multi-center Delphi exercise reveals important key items for classifying systemic lupus erythematosus. *Arthritis Care Res (Hoboken).* 2017.
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Classification criteria are needed to identify more homogeneous groups of patients for inclusion into research studies.<sup>1</sup> The European League Against Rheumatism (EULAR) and the American College of Rheumatology (ACR) supported a four-phase international effort to develop new classification criteria for systemic lupus erythematosus (SLE).

The validity of antinuclear antibody as an entry criterion was evaluated through systematic review and meta-regression of the literature.<sup>2</sup> Candidate additive criteria were collected through an international Delphi exercise,<sup>3</sup> an early patient cohort<sup>4</sup> and a patient survey. Items were reduced in number by nominal group technique (NGT). Multi-criteria decision analysis identified criteria weights. Criteria definitions, weights and threshold score were refined in a derivation cohort of 1001 subjects. The final criteria set was evaluated comparatively against previous criteria sets in a validation cohort of 1270 subjects.

ANA  $\geq 1:80$  were identified as an entry criterion.<sup>2</sup> Of the 140 candidate additive criteria evaluated, 21 were chosen by Delphi and NGT, grouped into 10 hierarchically clustered domains and weighted from 2 to 10.<sup>3-5</sup> Using a threshold score of  $\geq 10$ , the new criteria had a sensitivity of 96.3% and specificity of 94.1%, compared to 82.8% sensitivity and 93.4% specificity of the ACR 1997 and 96.7% sensitivity and 83.7% specificity of the Systemic Lupus International Collaborating Clinics (SLICC) criteria.

Using rigorous methodology, multidisciplinary, and international input, the new classification criteria provide excellent sensitivity and specificity. Use of an entry criterion, hierarchically clustered and weighted criteria reflect current thinking of SLE and provide a new paradigm for SLE research.

### Learning Objectives

- Discuss the previously unmet needs in SLE classification
- Provide an overview of the new SLE classification criteria development
- Present the new SLE classification criteria and their operating characteristics

## Notes

5. Tedeschi SK, Johnson SR, Boumpas D, et al. Developing and refining new candidate criteria for systemic lupus erythematosus classification: An international collaboration. *Arthritis Care Res (Hoboken)*. 2018;70(4):571–81.



Plenary I: What's New in Lupus Nephritis

Moderators: Rich Furie (USA) & Bevra Hahn (USA)

**Professor Brad H. Rovin, MD, FACP, FASN**  
Ohio State University, USA

## Classification of lupus nephritis: What's new?

### References

1. Parikh SV, Alvarado A, Malvar A, Rovin BH. The kidney biopsy in lupus nephritis: Past, present, and future. *Semin Nephrol.* 2015;35(5):465–77.

2. Rovin BH, Parikh SV, Alvarado A. The kidney biopsy in lupus nephritis: is it still relevant? *Rheum Dis Clin North Am.* 2014;40(3):537–52, ix.

3. Weening JJ, D'Agati VD, Schwartz MM, et al. The classification of glomerulonephritis in systemic lupus erythematosus revisited. *Kidney Int.* 2004;65(2):521–30.

4. Bajema IM, Wilhelmus S, Alpers CE, et al. Revision of the International Society of Nephrology/ Renal Pathology Society classification for lupus nephritis: clarification of definitions, and modified National Institutes of Health activity and chronicity indices. *Kidney Int.* 2018;93(4):789–96.

5. Parikh SV, Malvar A, Song H, et al. Molecular imaging of the kidney in lupus nephritis to characterize response to treatment. *Transl Res.* 2017;182:1–13.

The kidney biopsy has been one of the most important tools in understanding the effects of lupus on the kidney. It has been in use for several decades and over that time has been used to classify lupus nephritis (LN) based on light microscopic features.<sup>1,2</sup> Besides providing a histologic diagnosis, the biopsy has been expected to guide therapeutic decisions and predict prognosis. However this was not realised with the original World Health Organization classifications of LN, so the International Society of Nephrology and the Renal Pathology Society (ISN/RPS) developed a new system for classifying LN in 2003 to address these clinical needs.<sup>3</sup> Arguably the ISN/RPS did

not succeed at this and there is now a movement to update the classification.<sup>4</sup> We suggest that in the age of molecular medicine and the quest for personalised treatment, kidney histology by routine microscopy, no matter how well-described, will not be adequate to identify optimal therapies or quantify prognosis. The classification of LN should now move to combining histologic findings with molecular expression patterns from the kidney biopsy.<sup>5</sup> Furthermore, forecasting accurate prognosis likely requires repeat biopsy to understand changes in the kidney due to therapy. These issues will be discussed and supported with clinically relevant examples during this lecture.

### Learning Objectives

- Explain the weaknesses of current lupus nephritis classification systems
- Discuss the potential use of repeat kidney biopsies in the management of lupus nephritis
- Describe the need for a molecular pathogenesis approach to classify lupus nephritis

[illegible]



**Plenary I: What's New in Lupus Nephritis**

**Moderators:** Rich Furie (USA) & Bevra Hahn (USA)

**Professor Liz Lightstone, PhD, FRCP**  
Imperial College London, UK

## Emerging therapies for lupus nephritis

### References

1. Cassia M, Alberici F, Gallieni M, Jayne D. Lupus nephritis and B-cell targeting therapy. *Expert Rev Clin Immunol*. 2017;13(10):951–62.
2. Cunha C, Alexander S, Ashby D, et al. Hydroxychloroquine blood concentration in lupus nephritis: a determinant of disease outcome? *Nephrol Dial Transplant*. 2017.
3. Masoud S, McAdoo SP, Bedi R, Cairns TD, Lightstone L. Ofatumumab for B cell depletion in patients with systemic lupus erythematosus who are allergic to rituximab. *Rheumatology (Oxford)*. 2018.
4. Ruiz-Irastorza G, Ugarte A, Saint-Pastou Terrier C, et al. Repeated pulses of methyl-prednisolone with reduced doses of prednisone improve the outcome of class III, IV and V lupus nephritis: An observational comparative study of the Lupus-Cruces and lupus-Bordeaux cohorts. *Autoimmun Rev*. 2017;16(8):826–32.
5. Wilhelmus S, Bajema IM, Bertsias GK, et al. Lupus nephritis management guidelines compared. *Nephrol Dial Transplant*. 2016;31(6):904–13.

My presentation will briefly review standard of care for lupus nephritis, namely mycophenolate mofetil (MMF) and steroids or the EuroLupus regimen. Whilst we have good evidence for long term efficacy in those who respond, a significant proportion do not respond by one year and are more likely to reach end stage renal failure and face premature mortality, hence there is a need for better combinations of existing therapies and new agents targeting novel therapeutic pathways.

### Calcineurin inhibitors

There is a growing evidence, mostly from China, that adding the calcineurin inhibitor (CNI), tacrolimus to low dose MMF and “low dose” oral steroids, leads to greatly improved and more rapid complete remission rates. However, these improvements are not necessarily maintained over time and approach has yet to be validated with tacrolimus in a more diverse population. Voclosporin, a new CNI with much flatter dosing (does not require levels to be measured) and purportedly less nephrotoxic and diabetogenic than tacrolimus, has shown promise in a (as yet to be fully published) Phase II randomised control trial.

### B-cell depletion

Rituximab is used regularly for refractory lupus nephritis and, in our unit, as first line therapy for lupus nephritis – however, the trial data are lacking to support this approach. I will very briefly discuss the RITUXILup Trial, the results of which will be reported later this year. However, the study had to terminate early and I will discuss why and what this has taught us. I will also mention recent data using ofatumumab.

### Other emerging therapies

There are a number of therapeutic approaches under evaluation at present and I will briefly explore the rationale and progress – this will cover belimumab, anifrolumab and complement inhibition.

### Emerging therapeutic strategies

Whilst there is clearly unmet need for new therapeutic targets there is also a need to reduce the toxicity of current approaches, not least by reducing steroids. I will briefly review the data from the Cruces group, the control arm of the voclosporin study and our own data.

Finally, no therapy will work if not taken – new strategies to assess adherence are critical and if time permits I will mention monitoring hydroxychloroquine levels and how low levels are associated with increased risk of flare of nephritis.

### Learning Objectives

- Discuss current standard of care for lupus nephritis and its shortcomings
- Describe new therapeutic options and treatment strategies for improving outcomes in patients with lupus nephritis
- Explain the importance of assessing adherence to treatment regimens for improved outcomes in patients with lupus nephritis

[illegible]



**Plenary I: What's New in Lupus Nephritis**

**Moderators:** Rich Furie (USA) & Bevra Hahn (USA)

**Professor Evandro Klumb, MD, PhD**  
State University of Rio de Janeiro, Brazil

## Lupus nephritis: Dialysis and transplant

### References

1. Plantinga L, Lim SS, Patzer R, et al. Incidence of End-Stage Renal Disease Among Newly Diagnosed Systemic Lupus Erythematosus Patients: The Georgia Lupus Registry. (2151–4658 (Electronic)).
2. Naveed A, Niiubol C Fau - Melancon JK, Melancon Jk Fau - Giralanda R, et al. Preemptive kidney transplantation in systemic lupus erythematosus. (1873–2623 (Electronic)).
3. Naranjo-Escobar J, Manzi E, Posada JG, et al. Kidney transplantation for end-stage renal disease in lupus nephritis, a very safe procedure: a single Latin American transplant center experience. *Lupus*. 2017;26(11):1157–65.
4. Oliveira CS, d Oliveira I, Bacchiega AB, et al. Renal transplantation in lupus nephritis: a Brazilian cohort. *Lupus*. 2012;21(5):570–4.
5. Moroni G, Tantarini F, Gallili B, et al. The long-term prognosis of renal transplantation in patients with lupus nephritis. *Am J Kidney Dis*. 2005;45(5):903–11.

Glomerulonephritis is one of the most severe clinical presentations of systemic lupus erythematosus (SLE). Notwithstanding the availability of new drugs and modern laboratory biomarkers, end stage renal disease (ESRD) occurs in up to 30% of these patients. US data reveal that almost 1% of all patients starting ESRD treatment have lupus nephritis (LN).<sup>1</sup> At the same time, most patients initiating haemodialysis do not have a permanent vascular access [arteriovenous fistula (AVF) or graft (AVG)] adequately placed and patients frequently undergo treatment with a temporary central venous catheter, which has poorer outcomes in comparison to AVF or AVG.

Preemptive kidney transplantation (TX) presents better outcomes and is suggested for all patients with ESRD who are candidates for this treatment modality, however less than 10% of renal TX among SLE patients occur preemptively. Variables found associated with graft and global survival include delayed allograft function, HLA antibodies, type of donor kidney (living or deceased), donor illness and medical center factors. Since most LN patients who achieve ESRD progress slowly

and are more likely to receive a living donor kidney (OR=3,6 CI95%-3.3-4.5)<sup>2</sup> that may be preemptive, rheumatologists should be encouraged to refer early these cases to the renal transplantation team as soon as GFR is lower than 30 ml/min. Current data obtained in different studies, mostly with deceased donors, demonstrate graft survival in 5, 10 and 15 years from 72% to 94%, from 58% to 94% and from 58% to 71% respectively.<sup>3-7</sup> SLE patient survival for 15 years was found to be 76% to 98%, which is better than rates achieved in haemodialysis. Preemptive transplant recipients present lower risk of graft failure [HR= 0.69; 95%; CI- 0.55–0.86] and lower risk of recipient death [HR= 0.55; 95% CI- 0.36 – 0.84] in adjusted analyses. At the same time, patient survival may also be influenced by the time spent on dialysis prior to renal transplantation though the longer the time on dialysis the worse the overall survival after transplantation. The concern of disease recurrence after renal TX should not restrict preemptive procedures since the results are found to be better than TX after hemodialysis.

### Learning Objectives

- To provide current concepts about treatment of ESRD among SLE patients
- To identify the necessary procedures in preparation for ESRD which are frequently neglected in SLE patients
- To analyze the outcomes of different vascular access used for hemodialysis among SLE patients
- To identify the benefits and complications of different treatment modalities for ESRD among SLE patients
- To analyze data and outcomes of preemptive renal transplantation



## Notes

6. Ramirez-Sandoval JC, Chavez-Chavez H, Wagner M, et al. Long-term survival of kidney grafts in lupus nephritis: a Mexican cohort. *Lupus*. 2018;27(8):1303–11.
7. O'Shaughnessy MM, Liu S, Montez-Rath ME, Lafayette RA, Winkelmayer WC. Cause of kidney disease and cardiovascular events in a national cohort of US patients with end-stage renal disease on dialysis: a retrospective analysis. *Eur Heart J*. 2018.

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# Case Study Workshops

## Friday 7th September

### Parallel Case Study Workshops (AM) 11:00–12:00

|                                                                                         |                                                                                     |                                                            |
|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------|
| <i>Moderator: Murray Urowitz (Canada)</i><br>Lupus and infection versus/plus flare      |    | Bernardo Pons-Estel (Argentina) & Zahir Amoura (France)    |
| <i>Moderator: Ronald van Vollenhoven (Netherlands)</i><br>Juvenile and adolescent lupus |    | Clovis da Silva (Brazil) & Claudia Saad Magalhaes (Brazil) |
| <i>Moderator: Thomas Dörner (Germany)</i><br>Haematologic lupus                         |    | Rich Furie (USA) & Ian Bruce (UK)                          |
| <i>Moderator: Bevra Hahn (USA)</i><br>Lupus overlap syndromes                           |    | Ricard Cervera (Spain) & Andrea Doria (Italy)              |
| <i>Moderator: Munther Khamashta (UAE)</i><br>Lupus: Family planning and pregnancy       |   | Eloisa Bonfá (Brazil) & Guilherme de Jesus (Brazil)        |
| <i>Moderator: Sindhu Johnson (Canada)</i><br>Lupus and cancer                           |  | Adriana Danowski (Brazil) & David Isenberg (UK)            |

### Parallel Case Study Workshops (PM) 12:00–13:00

|                                                                                         |                                                                                     |                                                            |
|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------|
| <i>Moderator: Murray Urowitz (Canada)</i><br>Lupus and infection versus/plus flare      |  | Bernardo Pons-Estel (Argentina) & Zahir Amoura (France)    |
| <i>Moderator: Ronald van Vollenhoven (Netherlands)</i><br>Juvenile and adolescent lupus |  | Clovis da Silva (Brazil) & Claudia Saad Magalhaes (Brazil) |
| <i>Moderator: Thomas Dörner (Germany)</i><br>Haematologic lupus                         |  | Rich Furie (USA) & Ian Bruce (UK)                          |
| <i>Moderator: Bevra Hahn (USA)</i><br>Lupus overlap syndromes                           |  | Ricard Cervera (Spain) & Andrea Doria (Italy)              |
| <i>Moderator: Munther Khamashta (UAE)</i><br>Lupus: Family planning and pregnancy       |  | Eloisa Bonfá (Brazil) & Guilherme de Jesus (Brazil)        |
| <i>Moderator: Sindhu Johnson (Canada)</i><br>Lupus and cancer                           |  | Adriana Danowski (Brazil) & David Isenberg (UK)            |

## Please Note

These workshops will be held in breakout rooms. Please follow the appropriate signs/symbols corresponding to the workshops you are registered to attend.



**Moderator:** Murray Urowitz (Canada)

**Presenters:** Professor Bernardo Pons-Estel (Argentina) & Professor Zahir Amoura (France)

## Lupus and infection versus/plus flare



### Professor Bernardo Pons-Estel, MD

#### Case 1: A 20-year-old mestizo male, of low socioeconomic status and educational level

**Medical history:** A 20-year-old mestizo male received diagnosis of systemic lupus erythematosus (SLE) in October 2016. His SLE manifestations included photosensitivity, malar rash, diffuse alopecia, oral ulcers, symmetric arthritis, pleural effusion, ANA 1/640, positive anti-dsDNA and low complement level (C3, C4). He was treated with variable doses of prednisone ranging between 60 and 10 mg/day. His medication at evaluation included hydroxychloroquine 400 mg/day, methotrexate 15 mg/week and prednisone 15 mg/day. He had been immunised with influenza and pneumococcal vaccines.

**Family history:** His father had lupus, chronic renal failure and received a kidney transplant. He has four siblings, one male with a diagnosis of lupus and antiphospholipid syndrome who died 7 years ago at the age of 19 and another brother who was recently diagnosed with lupus nephritis.



**Reason for referral:** 10 days prior he had fever, polyadenopathy, malar rash, oral mucosal ulcerations, polyarthritis, shortness of breath, swelling of the face, hands and feet. On physical examination he had fever (39.5°C), tachycardia (105 BPM), tachypnea (respiratory rate 28/min), blood pressure 140/100 mmHg, weight 74 kg, edema on face, hands and feet, dyspnea and cough with hemoptysis. He was admitted to the hospital.

**Laboratory tests:** RBC 3.1 ( $\times 10^{12}/L$ ), haemoglobin 8.50 g/dl, haematocrit 26%, WBC 2.5 ( $\times 10^9/L$ ), neutrophils 80%, lymphocytes 14%, platelets 163 ( $\times 10^9/L$ ), ESR 85 mm (1<sup>st</sup> hr), CRP 49 mg/L, ProCT 18 ng/mL, BUN 62 mg/dL, serum creatinine 1.28 mg/dl, GFR 61 mL/min, blood sugar level 98 mg/dL, cholesterol 210 mg/dL, HDL-C 34 mg/dl, LDL-C 193 mg/dl, triglycerides 210 mg/dl, proteinuria 4.5 g/24 h, ANA 1:2560 (peripheral and speckled), positive anti-dsDNA (crithidia luciliae), positive anti-Sm, and negative anti-nRNP, anti-Ro, anti-La antibodies (ELISA test), normal values of antiphospholipid antibodies (lupus anticoagulant, anticardiolipin antibodies, anti-beta 2 glycoprotein), C3 55 mg/dL and C4 5 mg/dL.

**Blood culture:** Methicillin-resistant staphylococcus aureus.

**Urine culture:** Negative.

**Kidney biopsy:** Light microscopy: DPGN (Class IV). Activity 13, Chronicity 3. IF microscopy: full house deposits (IgG, IgM, C3, anti-C1q).

**Chest X-ray:** Bilateral diffuse pulmonary infiltrates.

**CT scan:** Bilateral patchy areas of ground glass opacity and consolidation in both lung fields with peribronchial predominance.

**Treatment:** Given the diagnostic difficulty of pulmonary involvement (haemorrhage vs. infection) he was treated with antibiotics and immunosuppressants. He received pulse of methylprednisolone (1000 mg/day for 3 days) and intravenous cyclophosphamide (1 gr/m<sup>2</sup>), plasmapheresis and enalapril (ACE inhibitors 10 mg/day). He also received treatment with IV antibiotics (ceftazidime and vancomycin).

#### Discussion points:

*Challenges in diagnostic work up of a febrile patient with possible lung infection/haemorrhage*

*Predisposing factors of infections in patients with SLE*

*Course of treatment in patients with life-threatening symptoms*

## Professor Zahir Amoura, MD, MSc

### Case 2: Disseminated TB in SLE

A 21-year-old male has had systemic lupus erythematosus (SLE) for 2 years and is maintained on hydroxychloroquine and prednisone 15 mg/d. Three months ago, he developed joint and back pains accompanied by intermittent fever and dry cough, episodes of diarrhoea and weight loss. A chest radiograph showed cavitary pulmonary tuberculosis (TB), laboratory tests revealed anaemia, normal leucocyte and platelet counts, 1+ proteinuria and pyuria >100/hpf; serum creatinine was normal. Sputum smears and needle aspirate of a fluctuant mass on the dorsal right hand tested positive for acid-fast bacilli. He was started on an anti-TB regimen consisting of isoniazid, rifampicin, pyrazinamide and ethambutol; prednisone and hydroxychloroquine (HCQ) were continued. Fever dissipated and cough improved over the next 8 weeks. Sputum and bursal fluid cultures grew *Mycobacterium TB*.

#### Discussion points:

##### *Risk factors for infection in SLE*

##### *Manifestations of TB infection in SLE*

Five days ago, he developed headache, hiccups, episodes of dizziness and vomiting accompanied by fever and painful swollen joints. On presentation at the emergency department, he appeared pale, weak and cachectic, tachycardic (125 beats/min), febrile (38.5 C), with orthostatic hypotension (130/80 mm Hg supine; 90/60 mmHg upright). He had early cataracts; optic disc margins were distinct with no papilloedema nor tubercles. There were few cervical lymph nodes, soft systolic heart murmur and fine crackles over both lung bases. Finger joints were warm, tender and swollen. Neurologic exam was normal.

#### Discussion point:

##### *Distinguishing SLE disease activity versus infection*

Haemoglobin was 90 g/L, white blood cell count  $7.3 \times 10^9/L$ , platelets  $270 \times 10^9/L$ . Urine showed 1+ albuminuria and pyuria >100/hpf. Serum creatinine was 1.51 mg/dL (ULN 1.2) (improved to 0.69 mg/dL following hydration), alanine transferase 117 (ULN 41); normal aspartate transferase, electrolytes, complement C3 1.1 g/L and anti-dsDNA. Repeat chest radiograph was unchanged. Abdominal ultrasound showed mild pelvocaliectasis on the right kidney; adrenals were not visualised. Blood and urine specimens did not grow any organism on aerobic cultures and sputum PCR did not detect rifampicin resistance. He received high-dose steroids with significant resolution of symptoms and orthostatic hypotension. He was discharged on prednisone 40 mg/d, HCQ, isoniazid and rifampicin. He continued to improve, with prednisone gradually tapered to 20 mg/d over the next 2 months.

#### Discussion point:

##### *Special considerations and challenges in management of TB in SLE*

## Learning Objectives

### Case 1

Patients with SLE accompanied by fever may present a diagnostic puzzle. The purpose of this presentation will be to discuss and review:

- Fever as a manifestation of SLE activity or a sign of infection
- Predisposing factors of infections in patients with SLE
- How to differentiate lupus pneumonitis, pulmonary hemorrhage and pulmonary involvement by infectious agents
- Treatments in critical situations, including life threatening situations

### Case 2

- Review diagnostic considerations in the febrile lupus patient
- Discuss risk factors for infection in SLE
- Apply clinical and laboratory parameters that help distinguish infection from disease activity
- Recognise various manifestations and special challenges in management of TB involvement in SLE



**Moderator:** Ronald van Vollenhoven (Netherlands)

**Presenters:** Professor Clovis da Silva, (Brazil) & Professor Claudia Saad Magalhães (Brazil)

## Juvenile and adolescent lupus



### Professor Clovis da Silva, MD, PhD

#### Case 1: Early onset cSLE with complete C1q deficiency

A 1-year-old Caucasian boy was diagnosed with childhood-onset SLE (cSLE) based on fever, hepatosplenomegaly, malar rash, photosensitivity, polyarthritis, oral ulcers, alopecia, pericarditis, transverse myelitis, lymphopenia and positive ANA, anti-dsDNA and anti-Sm antibodies. C3 and C4 levels were normal with decreased CH50 activity. He started treatment with intravenous methylprednisolone and intravenous cyclophosphamide (NIH protocol). He continued with sunscreen, hydroxychloroquine (5.0 mg/kg/day), tapering prednisone (1.0 mg/kg/day) and then started azathioprine (3.0 mg/kg/day). During the disease course, marked malar rash and photosensitivity (face, scalp, shoulders and chest), scarring alopecia, and recurrent cutaneous pyogenic/pneumonia infections and crusted (Norwegian) scabies were observed. At 11-years-old, intravenous immunoglobulin (2.0 g/kg/month) improved the skin lesions. At 12-years-old, complete C1q deficiency (C1qD) was confirmed by radial immunodiffusion (The Binding Site, Birmingham, UK). C1qD diagnosis was defined as the combination of undetectable C1q serum levels and normal levels of other complement components in at least two samples. His SLEDAI-2K score was 2 and anti-C1q antibodies were negative. Immunoglobulin classes (IgG, IgA and IgM), IgG subclasses and C1r/s, C4, C2 levels were normal. At 15-years-old, his SLEDAI-2K score was 2 and SLICC/ACR damage index 3 (transverse myelitis, osteoporosis with vertebral collapse and scarring chronic alopecia); he died of bronchopneumonia and sepsis.

#### Discussion points:

*Clinical spectrum/treatment/outcome of early onset cSLE with complete C1q deficiency*



### Professor Claudia Saad Magalhães, MD, PhD

#### Case 2: 9 year-old Caucasian female diagnosed with childhood-onset SLE, pancreatitis and macrophage activation syndrome

A 9-year-old Caucasian female was diagnosed with childhood-onset SLE (cSLE) based on polyarthritis, malar rash, positive Coombs test, hypocomplementaemia, positive ANA, anti-Sm, anti-Ro/SSA and anti-cardiolipin IgG antibodies. She received oral prednisone and hydroxychloroquine. After 6 months, she had fever due to upper respiratory infection, fatigue, myalgia, mouth ulcers, photosensitive rash, with leuko-lymphopenia, high AST, high ferritin levels, urine granular casts and 0.7 g/day proteinuria (SLEDAI 2K =16). She improved after IV methylprednisolone, antimicrobials and increased oral prednisone dosis. She was readmitted after a month due to *Yersinia enterocolitica* sepsis with cough, dyspnea, severe and progressive abdominal pain, jaundice, hepatosplenomegaly, petechiae and ecchymosis, high AST, ALT, transglutaminase, amylase, lipase, LDH, cytopenias, hypertriglyceridemia, hyperferritinaemia and hypofibrinogenaemia. A bone marrow aspiration was not available. She also had abdominal pain, increased pancreatic enzymes and abdominal CT with pancreatic oedema. She received fasting regime, intravenous fluids, opioids, 3rd generation cephalosporin and IV methylprednisolone pulse and maintenance with methylprednisolone 40 mg/day. Abdominal pain improved within 10 days, along with decreased pancreatic, liver enzymes, and cytopaenia.

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**Moderator:** Thomas Dörner (Germany)

**Presenters:** Professor Richard Furie (USA) & Professor Ian Bruce (UK)

## Haematologic lupus

While haematologic complications in lupus are not nearly as common as musculoskeletal, cutaneous, or renal manifestations, they may pose serious threats to the wellbeing of the patient.

### Professor Richard Furie, MD

#### Case 1: A 68-year-old African American female with long-standing systemic lupus erythematosus

A 68-year-old African American female has long-standing systemic lupus erythematosus (SLE) previously complicated primarily by Class IV lupus nephritis and hypertension. She participated in the BELONG trial (ocrelizumab for proliferative lupus nephritis) and did extremely well. She was admitted to the hospital in 2016 with acute onset of a left hemiparesis. Her blood pressure was 150/100. The general medical exam was normal, but her neurologic exam revealed left upper and lower extremity weakness.

Lab tests were notable for: WBC: 7.8; Hb: 14.4; Platelets: 701,000; Creatinine 1.1; C3: 88, C4: 15 and Sm 7.1 (normal <1.0). Lupus anticoagulant and cardiolipin antibodies were absent. IgA beta-2 glycoprotein I antibodies were 41. An MRA revealed multiple foci of restricted diffusion in the right periventricular subcortical white matter including the right precentral gyrus likely ischemic without haemorrhagic transformation, possibly embolic. Her symptoms resolved after 7 days and she was discharged on ASA 81 mg/d and atorvastatin.

### Professor Richard Furie, MD

#### Case 2: 27-year-old female with a 5-year history of SLE

A 27-year-old female with a 5-year history of SLE was admitted to the hospital because of confusion and fever. Past manifestations of SLE included arthritis, rash, pericarditis and anaemia (but no nephritis: baseline creatinine 0.7). At the time of admission, medicines included hydroxychloroquine 400 mg/day, prednisone 15 mg/day and calcium. Her exam was notable for BP 150/90; T 39 C; altered mental status; petechiae; Jaccoud's arthropathy; and bilateral Babinski's. Lab tests revealed Hb 6.8 g/dL; Plt 12 K/uL; PT/PTT 12/26 seconds; creatinine 1.9 mg/dL; urinalysis 5 WBC, 20 RBC; Pr/Cr 0.6 g/g; anti-DNA antibody 87 (<30 IU/ml) and C3/C4 normal.

Despite broad spectrum antibiotics, methylprednisolone 60 mg/day, and then pulse steroids, the patient became comatose, and there was no improvement whatsoever in her haematologic and renal parameters.

### Professor Ian Bruce, MD, FRCP

#### Case 3: A 50-year-old female with a 4-year history of SLE

A 50-year-old female was referred in 2007 with a 4-year history of SLE (photosensitivity, malar rash, arthritis, positive anti-ds-DNA, anticardiolipin, anti-Ro and anti-RNP antibodies and hypocomplementaemia). At first presentation she had a lymphopaenia and thrombocytopenia ( $50,000 \times 10^9/L$ ). An ultrasound scan had shown fatty liver and normal spleen; a bone marrow was in keeping with peripheral consumption.

Past history included hypertension, type II diabetes and avascular necrosis of her left hip. She was reluctant to take immunosuppressives so had been maintained on prednisolone 12.5-15 mg/day.

When first seen by us she had a normal Hb and white cell count and her platelet count was  $80,000 \times 10^9/L$ . She had an area of panniculitis on her left thigh and active synovitis.

She was started on hydroxychloroquine (stopped because of skin rash), and azathioprine (poor response) and then switched to mycophenolate mofetil (MMF). Her panniculitis and synovitis improved and her

platelet count was 50-80,000  $\times 10^9/L$  on monitoring. Her anti-dsDNA antibodies remained elevated with persistent hypocomplementaemia. In 2008 she developed nephrotic range proteinuria (Class IV nephritis on renal biopsy) and was treated with rituximab following which her proteinuria normalised and platelet count improved to 100-120,000  $\times 10^9/L$ .

Her renal remission was maintained after a second rituximab cycle in 2012. Her anti-dsDNA and complement normalised. Her steroids were reduced to 7.5mg daily (she has adrenal insufficiency).

In 2015-16 her platelet count started to slowly fall from 90-100,000  $\times 10^9/L$  to persistently 40-50,000  $\times 10^9/L$ . She had evidence of skin thinning and easy bruising attributed to chronic steroid use. In 2016 she also developed iron deficiency anaemia and so further investigations were undertaken.

**Discussion point:**

*The investigation and management of chronic thrombocytopaenia in SLE*

**Professor Ian Bruce, MD, FRCP**

**Case 4: A 66-year-old lady with SLE and a 2-year history of alopecia, recurrent oral ulceration, malar rash, synovitis, lymphopaenia and neutropaenia**

A 66-year-old female was referred in 2014 with SLE characterised by a 2-year history of alopecia, recurrent oral ulceration, malar rash, synovitis, lymphopaenia and neutropaenia. She had positive ANA, anti-dsDNA, anti-Ro and anti-La antibodies.

Because of the persistent neutropaenia (0.1-0.5  $\times 10^9/L$ ) she had a bone marrow examination in her local hospital, which showed no evidence of myelodysplasia but was in keeping with peripheral consumption and autoimmune neutropaenia. She was unable to tolerate hydroxychloroquine and so was initiated on steroids 7.5-10 mg/day to control her synovitis and active lupus. Her neutrophil count was persistently  $<1.0 \times 10^9/L$ . Her arthritis and rash persisted despite steroids (the use of which were limited by ongoing neutropenia and recurring urinary infections).

In discussion with haematology, she was given G-CSF three-times per week to maintain a neutrophil count  $>4.0 \times 10^9/L$  and low-dose MMF (1.5 g/day) was introduced with improvement in her synovitis, rashes and mouth ulcers. Her steroids were reduced to 2.5 mg/day. Her G-CSF was then reduced to once a week with a reduction in neutrophil count (0.1-0.5  $\times 10^9/L$ ) and no infections.

After 12 months she developed nausea, vomiting and stopped her MMF. While off MMF she had an episode of urosepsis following a gynaecological procedure (her neutrophil count was 0.1  $\times 10^9/L$  during that episode).

**Discussion points:**

*Assessment and management of neutropaenia in SLE*

*Use of immunosuppressive medications in the context of neutropenia*

## Notes

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**Moderator:** Bevra Hahn (USA)

**Presenters:** Professor Ricard Cervera (Spain) & Professor Andrea Doria (Italy)

## Lupus overlap syndromes



### **Professor Ricard Cervera, MD, PhD, FRCP**

#### **Case 1: A 48-year-old Caucasian woman with SLE**

A 48-year-old Caucasian woman with history of systemic lupus erythematosus (SLE) was admitted at the Hospital Clinic of Barcelona with myalgias in her arms and legs. Diagnosis of SLE had been made one year before based on photosensitivity, arthritis, Raynaud's phenomenon, leucopaenia, lymphopaenia and detection of antinuclear, anti-dsDNA, anti-Ro/SS-A, anti-La/SS-B and anti-RNP antibodies. She had received hydroxychloroquine (discontinued because of side effects), low-to-moderate doses of prednisone and methotrexate during this past year.

The patient reported 6 days of muscle pain in both arms and legs as well as increased fatigue. No previous history of any trauma or exercise was reported by the patient. Her medications on admission included methotrexate (15 mg/week), prednisone (10 mg/day), calcium-vitamin D and several pain-killers.

The patient was in a regular state. Physical examination revealed inflammatory signs in the muscles of both legs and arms. Laboratory tests showed creatine-phosphokinase (CPK) levels of 1,049 U/L.



### **Professor Andrea Doria, MD**

#### **Case 2: A 27-year-old Caucasian woman with lupus syndrome**

A 27-year-old Caucasian woman developed polyarthritis in her wrists, hands, and knees, morning stiffness >3 hours, rash after sun exposure, oral ulcers, fever and leuco-thrombocytopenia. Blood examinations revealed positive ANA (1/640 homogenous pattern), anti-dsDNA, anti-SSA, rheumatoid factor, and anti-CCP antibodies. She was diagnosed with Lupus syndrome and treated with prednisone, hydroxychloroquine (HCQ) and methotrexate (MTX). Her manifestations initially improved, except polyarthritis (DAS28-CRP: 5). Unfortunately she stopped MTX due to hepatotoxicity, and was instead given leflunomide, which was withdrawn due to gastrointestinal symptoms. She was then treated with rituximab, 1 g twice two weeks apart, with partial response (DAS28-CRP: 3); she also required several intra-articular steroid injections. Therefore tocilizumab was given, but was discontinued after a few infusions due to severe leukopenia. Remission was achieved for the first time with a combination treatment based on MTX, HCQ, prednisone and abatacept, but after a few months the patient got unexpectedly pregnant. Abatacept and MTX were stopped. At the third trimester of pregnancy, she experienced a lupus flare (polyarthritis, fever, thrombocytopenia), which was managed with IV pulse methylprednisolone (500 mg x3) and IgG with complete recovery. At the 38th week of gestation, a male child was born with caesarean section without further maternal or neonatal complication. After pregnancy, abatacept and MTX were reintroduced due to persistent polyarthritis but without success; baricitinib was started in addition to MTX, HCQ and prednisone with very good results.

## Case 1

- Recognise clinical, laboratory, imaging and pathology features, which help assess muscle involvement in SLE patients
- Discuss principles and strategies for the management of muscle involvement in SLE
- Recognise clinical, laboratory, imaging and pathology features of other associated systemic autoimmune diseases in SLE patients
- Demonstrate clinical awareness of potential association of severe systemic autoimmune diseases in SLE patients
- Describe principles and strategies for the management of other associated systemic autoimmune diseases in SLE patients

## Notes

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**Moderator:** Munther Khamashta (UAE)

**Presenters:** Professor Eloisa Bonfá (Brazil) & Professor Guilherme de Jesús (Brazil)

## Lupus: Family planning and pregnancy



### **Professor Eloisa Bonfá, MD, PhD**

#### **Case 1: A 36-year-old Brazilian Caucasian woman**

A 36-year-old Brazilian Caucasian woman was diagnosed with systemic lupus 3 years ago following presentation of malar rash, polyarthritis, recurrent thrombocytopaenia, proteinuria, hypertension, normal creatinine, positive ANA and anti-dsDNA and low complement. She was treated with mycophenolate mofetil (MMF) 3 g/day, prednisone (30 mg/day), hydroxychloroquine (HCQ) 200 mg/day and antihypertensive drugs with complete renal response in 6 months and with sustained remission since. She currently has no complaints and no features of lupus. Her labs are currently normal, blood pressure 140/90 and she is taking MMF 1 g/day, HCQ 5 days a week and an ACE inhibitor. She is nulliparous and wishes to conceive.

#### **Discussion points:**

*Best practice for planning a safe pregnancy*

*Offer appropriate contraception for the systemic lupus erythematosus patient*



### **Professor Eloisa Bonfá, MD, PhD**

#### **Case 2: A 32-year-old Brazilian Caucasian woman**

A 36-year-old Brazilian Caucasian woman was diagnosed with systemic lupus erythematosus 3 years ago. Initially, she presented malar rash, arthritis, pleuritis, lower extremity edema, high blood pressure, renal insufficiency and nephrotic syndrome. She was treated with HCQ, prednisone, MMF and antihypertensive drugs, with complete response in one year. Thereafter, she lost follow-up and self-discontinued the medication.

She became pregnant and presented at hospital, at 12 weeks gestation, with fatigue, malar rash, arthritis, oedema in the lower extremities and high blood pressure (140/100). Laboratory analysis revealed serum creatinine 1.3 mg/dL, proteinuria 2.5g/24 h, haematuria, reduced C3/C4 levels and positive anti-nuclear/anti-DNA autoantibodies. Antiphospholipid antibodies, anti-Ro/SS-A and anti-La/SS-B were negative. She had two previous pregnancies before lupus diagnosis without complications.

#### **Discussion points:**

*Identify adverse pregnancy risk factors of lupus pregnancy*

*How to recognise and treat lupus nephritis during pregnancy: immunosuppression and beyond*

### **Professor Guilherme de Jesús, MD, PhD**

#### **Case 3: A 28-year-old with malar rash**

A 28-year-old woman was diagnosed with systemic lupus 8 years ago, when she presented malar rash, polyarthritis, photosensitivity, pleural effusion, positive ANA and anti-SM. Initial laboratorial evaluation also identified triple positivity for antiphospholipid antibodies (lupus anticoagulant, anticardiolipin IgG and anti-beta2-glycoprotein I IgG), but at that time she never had any thrombosis or pregnancy morbidity. She was advised against combined oral contraceptive use and started low dose aspirin. However, after 3 years she developed unprovoked deep venous thrombosis and pulmonary embolism, when she was given warfarin for anticoagulation with a target INR between 2 and 3.

She has had no lupus symptoms for the last 3 years and never presented other thrombotic events after starting warfarin. She is currently using prednisone 5 mg/day, hydroxychloroquine 400 mg/day and warfarin 5 mg/day. She is nulliparous and wishes to conceive.

#### **Discussion points:**

*Identify adverse pregnancy risk factors of lupus pregnancy*

*Association of antiphospholipid syndrome and lupus during pregnancy*

*Anticoagulation and delivery*

### Case 4: An 18-year-old woman with malar rash, arthritis and sudden onset of hypertension

After a favourable response to initial treatment, she was discharged from hospital but was advised against the use of combined oral contraceptives considering her diagnosis of SLE. However, she did not use any other contraceptive method and mentioned to her rheumatologist that her period was absent for 4 months. After confirmation with beta-hCG, ultrasound identified an 18 week pregnancy. At the moment she has normal blood pressure and laboratory evaluation shows 2 g/24h proteinuria, dysmorphic haematuria, serum creatinine 1.0 mg/dl, low complement and positive anti-dsDNA.

### Best practice for planning a safe pregnancy

## Learning Objectives

- Discuss the best practice for planning a safe pregnancy
- Offer the adequate contraception for systemic lupus erythematosus patient
- Manage therapies for SLE that can be used safely in pregnancy
- Identify adverse pregnancy outcome risk factors

- Describe the management of antiphospholipid syndrome and lupus during pregnancy
- Explain best delivery while using anticoagulation
- Discuss obstetric and clinical complications expected in prenatal care
- Advise breastfeeding best practice when using rheumatic drugs

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**Moderator:** Sindhu Johnson (Canada)

**Presenters:** Dr Adriana Danowski (Brazil) & Professor David Isenberg (UK)

## Lupus and cancer



### Professor David Isenberg, MD, FRCP, FAMS

Patients with lupus may develop a variety of symptoms that need to be distinguished from a malignancy; thus lymphadenopathy, weight loss and even fever may at times require detailed investigation, including taking tissue biopsies, to discriminate between the two. For many years there was uncertainty as to whether rates of cancer were increased (or even decreased) in patients with lupus. Studies started nearly 20 years ago by the Systemic Lupus Erythematosus Collaborating Clinics (SLICC) group were the first to assess the sufficiently large numbers of patients (approximately 10,000) needed to begin to answer the question acutely. The data published by this and other consortia now indicate that there is an increase of non-Hodgkin's lymphoma in lupus patients, approximately four times that of the healthy population.<sup>1</sup> These are usually diffuse large B cell lymphomas. Other tumours shown to occur with a more modest increase include cervical cancer, especially cervical dysplasia and carcinoma in situ (which may be linked to human papilloma virus exposure), lung cancer and possibly liver cancer. Intriguingly breast,<sup>2</sup> endometrial and possibly ovarian cancers may be occurring at reduced frequency, which is particularly notable since obviously these are diseases of women who make up 90% of the lupus population. Some novel theories to explain why there might be a reduction have been put forward recently, based upon the recognition that some anti-ds DNA antibodies have live cell penetrating capacity, which may cause disruption to the internal function of certain cells.<sup>3</sup>



### Dr Adriana Danowski, MD, MSC

#### Case 1: SLE and lung cancer

A 55-year-old Caucasian female was diagnosed with systemic lupus erythematosus (SLE) in January 2005 when she presented with lupus nephritis (biopsy class III), malar rash, arthritis, serositis, and positive ANA and anti-DNA. She was treated with IV cyclophosphamide and subsequently mycophenolate plus hydroxychloroquine. She had a complete renal response and was able to withdraw immunosuppressive therapy 5 years later. In April 2015, she presented with weight loss, fatigue and dry cough. She was a former smoker (30 packs/year). Her X-ray and CT chest scan showed a mass on the right upper lobe. A biopsy was performed and confirmed the diagnosis of squamous cell carcinoma. She was submitted to resection surgery followed by chemotherapy.

#### Discussion points:

*Discuss the risk for overall malignancy and the risk for site-specific malignancies with increased prevalence in SLE*

*Explore risk factors associated with malignancies in SLE*

*Discuss the screening for cancer in SLE and the management of SLE patients after cancer*







**Professor Richard Furie, MD**

Hofstra Northwell School of Medicine, New York, USA

## Current treatment targets in lupus

### References

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The clinician engaged in the care of lupus patients is faced with clinical heterogeneity not seen in any other disease. This makes the assessment of disease activity as well as the creation of treatment goals particularly difficult. Even for seasoned “lupologists”, challenges abound. During a typical encounter, most healthcare providers rely on a combination of “clinical gestalt” and laboratory test results to assess the status of the patient. However, clinical research, particularly drug development clinical trials, mandates the use of formal metrics. Whereas several different disease activity instruments have been developed, the Systemic Lupus Erythematosus Disease Activity

(SLEDAI) and British Isles Lupus Assessment Group (BILAG) indexes have risen to the top. Based on FDA draft guidance, issued in 2005, along with a post-hoc analysis of the Phase II belimumab trial, a composite index was born. Known as the SLE Responder Index (SRI), it was used as the primary endpoint in the successful Phase III belimumab program. A parallel outcome measure, BILAG-based Composite Lupus Assessment (BICLA), was created shortly thereafter. Efforts to refine these composite metrics with the goal of making assessments simpler and more clinically meaningful are underway.

### Learning Objectives

- Recognise the need for treatment targets in lupus
- Describe the evolution of composite endpoints (SLE Responder Index: SRI; BILAG-based Composite Lupus Assessment: BICLA)
- Discuss the pro's and con's of composite indices

## Notes

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**Professor Ronald van Vollenhoven, MD, PhD**

Amsterdam Rheumatology and Immunology Center, Reade, VUMC, Amsterdam, Netherlands

## Remission and low disease activity as treatment targets in lupus

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There is evidence in many chronic diseases that treating-to-target (T2T) gives better outcomes. For systemic lupus erythematosus (SLE) this has not strictly been proven, but an international task force has recommended that, in analogy to those other diseases, T2T should be employed for SLE as well.<sup>1</sup> In order to do so, the target must be defined in measurable terms.

In parallel, those who design clinical trials for SLE have proposed outcomes that emphasise disease state rather than the change from baseline, again with the need for accurately defined quantifiable outcomes.<sup>2</sup>

Remission is intuitively understood as a highly desirable disease state, but defining it accurately has been challenging. The international “DORIS” (definitions of remission in SLE) task force

proposed a framework for developing remission definitions and for testing their validity,<sup>3</sup> and this work has now led to a series of publications on possible definitions of remission in SLE. In parallel, the Asia Pacific Lupus Group developed and validated a definition of low disease activity (LDA), the Lupus LDA state, LLDAS.<sup>4</sup>

Thus, the development of accurate and quantitative LDA and remission definitions has accelerated and has now reached the stage where, I believe, the lupus community will be able to unite around a “core-set” of outcomes including both LDA and remission that can be used as end points in clinical trials, as outcomes in other forms of clinical research and as the target in clinical care, leading to better long-term outcomes for the patients.

### Learning Objectives

- Define the treat to target approach and outcomes for SLE
- Discuss definitions of remission and LLDAS as part of the T2T approach for SLE
- Explain how T2T and LLDAS approaches support improved treatment outcomes for patients with SLE

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**Professor Dr Matthias Schneider, MD, PhD**  
Heinrich-Heine-University Dusseldorf, Germany

## Quality of life as a treatment target in lupus

The prognosis of lupus patients is essentially defined by the cumulative damage they suffer from their disease and the undesirable effects of their therapy. According to today's understanding, the main factors for this damage are disease activity and the use of glucocorticoids, both of which have a corresponding significance in the criteria for remission and low disease activity. Because it is known that fatigue and participation have an influence on long-term prognosis, the FDA also sees health-related quality of life (HrQoL) as the primary endpoint of clinical trials. In 2009, the European League Against Rheumatism also recommended that HrQoL be included as an outcome parameter in clinical studies. Although HrQoL is an independent variable for the prognosis, it is not found in the therapy goals for lupus. There are also sufficient and validated tools available to capture the complex aspects of HrQoL. Why does the use of HrQoL as a therapy goal fail?

### Learning Objectives

- Discuss the treat-to-target approach and therapeutic outcomes and HrQoL in patients with lupus
- Describe both the physicians' and patients' perspectives in lupus and therapeutic outcomes
- Explain HrQoL domains and instruments

## Notes

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Plenary III: Management of Lupus

Moderators: Eloisa Bonfá (Brazil) & Ricard Cervera (Spain)

**Professor Judith James, MD, PhD**

University of Oklahoma Health Sciences Center, Oklahoma, USA

## Biomarkers to predict flares

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1. Gensous N, Marti A, Barnatche T, et al. Predictive biological markers of systemic lupus erythematosus flares: a systematic literature review. *Arthritis Res Ther.* 2017;19(1):238.
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Systemic lupus erythematosus (SLE) is a systemic disease characterised by waxing and waning disease activity, where periods of relatively mild disease may be punctuated by periods of intense and debilitating disease activity. Despite improved treatment regimens and the use of clinical instruments to measure disease activity, patients with SLE may experience an average of 1.77 disease flares per year. The frequency and severity of flares are important prognostic indicators for long-term outcomes because both disease flares and the major immunosuppressants used to treat flares can cause irreparable damage. Robust predictors of clinical SLE flares are needed to optimise the timing of aggressive treatments while safely minimising immunosuppressant use during periods of low disease activity.

Although predictors of SLE flares have been difficult to identify,<sup>1</sup> significant work is underway. In the SLICC inception cohort,<sup>2</sup> disease activity in the first year corresponded with annual relapse rates and average SLEDAI scores over 5 years of follow-up. In a *post-hoc* analysis of the placebo arms of belimumab trials,<sup>3</sup> the best baseline predictors of moderate-to-severe flare over the following year were renal involvement, anti-dsDNA>200, BLYS levels >2, low complement levels, or vasculitis/neurologic involvement.

In recent biomarker studies,<sup>4,5</sup> circulating pro-inflammatory mediators increased and regulatory mediators decreased prior to SLE flares, predominantly in T-helper, interferon-related and TNF-related pathways. Although the altered pathways varied among patients, an algorithm that simultaneously surveyed multiple immune pathways predicted impending flares with high sensitivity and specificity. In a paediatric lupus study a plasmablast expression signature was the most robust biomarker of disease activity<sup>6</sup> and personalised immune-monitoring identified correlates of disease activity that stratified patients into seven major groups. Finally, among adult SLE patients who stopped their background immunosuppressants and received intramuscular steroids until disease suppression, early flare was associated with baseline CD11b/ITGAM overexpression, CD11bhi neutrophils and monocytes, CD86hi B cells and lower IL-1RA and TNFR1. This talk will discuss highlights of current biomarker development and future directions for moving biomarkers into clinical care and improving outcomes.

### Learning Objectives

- Discuss clinical factors that may predict SLE flares
- Recognise challenges in validating biomarkers for SLE flares
- Describe the role of immune pathway activation in predicting SLE flares
- Identify candidate biomarkers for SLE flares

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Plenary III: Management of Lupus

Moderators: Eloisa Bonfá (Brazil) & Ricard Cervera (Spain)

**Professor David Isenberg, MD, FRCP, FAMS**  
University College London, UK

## Preventing damage (atherosclerosis, bone disease, infection and malignancy)

### References

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To assess a lupus patient completely requires the ability to distinguish activity (implying ongoing inflammation, potentially remediable to therapy) and damage (implying permanent change which anti-inflammatory medication cannot alter), as well as a recognition of the importance of the patient's perception of their disease.

It has long been established that damage acquisition is important as it predicts both the development of further damage<sup>1</sup> and early death.<sup>2</sup> Twenty years ago the Systemic Lupus Erythematosus Collaborative Clinics group (SLICC) published a damage index for lupus that is still in use today.<sup>3</sup> It remains the only one of its kind.

The SLICC index deliberately avoids attempting to ascribe the precise cause of an individual item of damage as this may be multiple and/or complex in origin. Damage items in the index are identified under twelve headings and damage can never improve only stay the same or worsen. Many studies in the past two decades [eg Petri *et al* 2012<sup>4</sup>] have, however, attempted to identify the important causes of damage in systemic lupus erythematosus (SLE). In broad terms, the disease itself, a concomitant disease (approximately 30% of SLE patients have a second/third/fourth autoimmune condition) or therapy may all give rise to damage.

This talk will focus on the important contribution to damage [discussed in detail elsewhere<sup>5</sup>] brought about by atherosclerosis (SLE patients between 35 and 44 are fifty times more likely to have a heart attack); bone disease (principally osteoporosis invariably linked to steroid therapy); infection (both SLE itself and the immunosuppressive drugs often used to treat it increase the risk) and malignancy (non-Hodgkin's lymphoma is the "stand-out" cancer linked to lupus).

Remaining mindful of the likely determinants of increased damage is extremely important to minimise its development and help increase the lifespan of patients with SLE.

### Learning Objectives

- Learn about the SLICC damage index
- Understand that preventing damage especially early in the disease is vital to help increase the lifespan of patients with SLE
- Recognise that damage may be brought about by the lupus itself, concomitant disease or complications of therapy
- Recognise the potential contribution to damage in SLE from atherosclerosis, bone disease, infection and malignancy

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# Curbside Consults



**Moderator:** Professor Thomas Dörner (Germany)

**Professor Thomas Dörner, MD**

Charite University Hospitals Berlin, Germany

**Panellists:** Zahir Amoura (France), Bevra Hahn (USA), David Isenberg (UK), Munther Khamashta (UAE)

## Curbside consults: The experts tackle three short and challenging cases



### Case 1: Intestinal pseudo-obstruction in SLE

A 33-year-old woman with a 15 year history of systemic lupus erythematosus (SLE) and previously treated with prednisone, cyclophosphamide, hydroxychloroquine, azathioprine and finally mycophenolate mofetil (due to increased kidney function failure) is now in end-stage renal disease (for the past 3 years) and requires haemodialysis.

In recent months, she developed very severe diarrhoea with up to 7 stools/day (w/o blood), erythema, fever, painful flanking regions and paraesthesia, resulting in hospital admission. Abdominal CT revealed intestinal visceromegaly and bilateral hydronephrosis. Urine cultures: *E. coli* (>20,000 units) requiring antibiotic treatment with ciprofloxacin for one week. Despite ciprofloxacin (antibiogram +++), she suffered from persistence of fever, pain and abdominal distention without an obvious focus of sepsis or subsepsis.

Five days later, she developed a lupus flare with pleuritis, polyarthritis, thrombocytopenia (52,000), reduced C3 and C4 and increased dsDNA titre (1:16); she had an overall SLEDAI of 8.

Initial therapy comprised oral steroids starting with 40 mg prednisolone/day – tapered to 15 mg/day over a 3 week period. Gastrointestinal (GI) symptoms improved within the first 3–4 days of prednisolone, consistent with intestinal pseudo-obstruction (IPO), reductions of lactate dehydrogenase and a follow-up abdominal CT. The patient improved and was discharged but again developed the same GI symptoms, which were unrelated to other lupus activity. Again, the patient received steroids on a readmission in the same year leading to clinical improvements.

#### Discussion points:

*Do we capture GI manifestations of SLE appropriately?*

*Have you ever seen relapse of IPO in SLE?*

*Would you consider increase of immunosuppression in this case or any alternate therapeutic approach, such as anti-infective therapy or even stool transplantation?*



### Case 2: Acute portal vein occlusion (Budd Chiari) as an APS manifestation of SLE

A 28-year-old woman with SLE was admitted with oedema and pain in both legs that developed during the last 2 months. Initial SLE diagnosis comprised kidney manifestations (haematuria, proteinuria, azotaemia), anaemia and thrombocytopenia, C4 hypocomplementaemia, increased antinuclear antibodies (ANA: 1:1280) with positive anti-ds DNA antibody and positive anti-Sm antibody about 5 years ago. She has never taken oral contraceptives. Her initial treatment was methotrexate 10 mg/week with prednisolone 7.5 mg/day. Anticardiolipin antibody (ACA) was 85 IU/mL (persistently elevated or positive), prolonged partial thromboplastin time (108 sec, with lupus anticoagulant insensitive testing 30.0 sec).

Her complaints included polyarthralgia, severe constitutional symptoms (nausea, unclear loss of productivity etc.), but she did not complain of fever, malar rash, photosensitivity, oral ulcers, Raynaud's phenomenon, xerostomia, keratokconjunctivitis sicca or alopecia. On examination, chest auscultation and abdomen palpation revealed no abnormalities and peripheral arterial pulsation was normal. She had livedo for several years but no cutaneous vasculitis. Oedema and pain in her legs were not related to a deep vein thrombosis including iliac and inferior cava veins (color Doppler ultrasound).

Abnormal lab data included haemoglobin 10 g/dL, WBC of 7.2 with lymphopaenia of 10%, platelets  $84 \times 10^3/\text{mm}^3$ , proteinuria 0.6 g/day with normal GFR, urinalysis showed 0 to 2 WBC and 10 RBC per high power fields. Elevated liver enzymes: AST was 67 IU/L, ALT 72 IU/L, alkaline phosphatase 229 IU/L, g-GT 76 0.7 mg/dL. Prothrombin time was 11.8 sec (normal: <12.1 sec) and activated partial thromboplastin time 59.2 sec (aPTT FS 26.6 sec). Lupus anticoagulant was found positive by the Kaolin clotting test.

Immunology: ANA positive (homogenous pattern, titre 1:1280), Anti-ds DNA antibody 5 IU/mL (negative), CIFT negative; Siglec-1 (CD169 on CD14+ monocytes positive, reduced C3 21 mg/dL and C4 15 mg/dL levels, anti-ENA were all negative, anti-cardiolipin IgG and anti- $\beta_2$  GP I IgG positive; direct and indirect Coombs' tests negative. AMA incl. M-2 antibodies were negative.

Viral hepatitis tests revealed that HBs antigen was negative, anti-HBs IgG antibody positive and hepatitis C virus antibody negative.

Abdominal ultrasound and CT revealed acute thrombosis left portal vein branch; endoscopy showed esophageal varices Grade II.

#### Discussion points:

*How would you proceed? Do we need to exclude other causes of portal vein thrombosis?*

*What would be your treatment recommendation? Increase immunosuppression?*

*Anticoagulation? If yes, which anticoagulant and for how long? Are you aware of any international guidelines?*

#### Case 3: Suspected (paraneoplastic) CTD/SLE with cerebral involvement

A patient presents with no prior history of any autoimmune disease including SLE. In 2014, they had a partial penis resection with lymphadenectomy due to carcinoma (pT2 L0 pN0 R0 G3), in 2015 amputation of penis and placement of a Bouton kidney. Subsequently local and systemic metastasis including mediastinum and lung. The patient received three cycles of neoadjuvant chemotherapy (cisplatin, paclitaxel, 5-FU) requiring en-bloc resection of symphysis region. Subsequently, 14 cycles of panitumumab leading to a regression of iliac and mediastinal lymphadenopathy (CT).

At the end of 2017, the patient developed fever flares and subsequent weakness of both legs, requiring resting periods, when walking, and accompanied by increasing loss of orientation and cognitive dysfunctions. He was admitted to an external hospital where a delirant syndrome, Wernicke encephalopathy (B1 deficiency) was suspected. He also had a butterfly rash, moderate thrombocytopaenia (110) and anemia (Hb 10.5). The following diseases could be excluded: porphyria, PML, HAV, HBV, HIV, blood cultures were repeatedly negative and there were no indications of CNS vasculitis. CSF showed only reactive pleocytosis and no oligoclonal bands.

Immune findings: normal immune status (T, B, NK cells, Monocytes), ANA 1:5120, enhanced Anti-ds-DNA-Ak 45,5 U/ml, Anti-SmD1-Ak positive 56,1 U/ml, anti-GAD65 weak positive (onconeural antibodies).

Cerebral MRI showed unspecific demyelinating lesions within the left hemisphere, likely of microangiopathic nature, and older microinfarctions. Neurology-consult revealed suspected SLE with CNS manifestation with paresis of both lower extremities and referral to the Department of Rheumatology and Clinical Immunology.

#### Discussion points:

*Would you consider this a SLE case? Would you do further diagnostic work up?*

*Would you start treatment? If so, what would be your treatment strategy?*



Plenary IV: CNS Disease

Moderators: Bernardo Pons-Estel (Argentina) & Andrea Doria (Italy)

**Professor Bevra Hahn, MD**

University of California, Los Angeles, USA

## Clinical phenotypes and the management of neuropsychiatric lupus

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1. Schur P, Neurologic Lupus. UpToDate. Accessed August 1, 2018.
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4. Angeletti A, Baraldi O, Chiocchini AL, et al. Rituximab as first-Line therapy in severe lupus erythematosus with neuropsychiatric and renal involvement: A case-report and review of the literature. *J Clin Case Rep*. 2017;7(10).

The pathogenesis of neurologic disease resulting from systemic lupus erythematosus (SLE) can be viewed as consisting of two major attacks on brain/spinal cord. The first is vascular and can be bland vasculopathy which includes occlusions (most common), vasculitis, or clotting due to antiphospholipid or platelet disorders. The second is diffuse inflammation, which results from several autoantibodies (to neurons, NMDA2, ribosomal P, phospholipids) being able to cross a disrupted blood brain barrier to cause complement fixation, cytokine release, damage to cells and interference with neurotransmitter signalling. Thus, the clinician approaching a patient with neuropsychiatric symptoms and SLE must decide first if the problem is due to SLE (it is usually not) and if it is due to SLE (more likely if the disease is active in other systems and studies of spinal fluid, EEG and images suggest disease compatible with SLE), whether the problem is vascular or inflammatory or both. Therapies depend on those answers. For example, strokes are treated with the current

common approach to acute stroke (rapid imaging, removal of clots or dissolution of acute clots) followed by consideration of low-dose aspirin and, if a major problem, long-term anticoagulation with relatively high INR. If there is diffuse inflammation (acute confusion, psychosis, aseptic meningitis, etc.) appropriate treatment is moderate-to-high dose glucocorticoids often with another immunosuppressive such as cyclophosphamide, mycophenolate, azathioprine, rituximab etc. For seizures, psychosis and mood disorders (depression is very common and can associate with active disease), treatment with medications for those disorders is appropriate, often in combination with anti-inflammatory approaches. This presentation will discuss several separate disorders seen in neuropsychiatric SLE, such as cognitive dysfunction, headache, psychosis, neuromyelitis optica, reversible posterior encephalopathy. Most of these disorders respond to current therapies.

### Learning Objectives

- Discuss the current thinking of pathogenesis of neurologic disease in patients with SLE
- Explain features of disease presentation that make it likely that a neuropsychiatric problem is due to active SLE
- Describe the utility of ascribing neuropsychiatric problems to either vasculopathy or inflammation of SLE
- Discuss current therapeutic approaches to NPSLE including treatment of vasculopathy or inflammation or both
- Describe recently recognised neurologic syndromes that are probably attributable to SLE

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# Abstracts



Plenary IV: CNS Disease

Moderators: Bernardo Pons-Estel (Argentina) & Andrea Doria (Italy)

**Professor Simone Appenzeller, MD, PhD**

University of Campinas (UNICAMP), Brazil

## Update on imaging in neuropsychiatric lupus

### References

1. Postal M, Lapa AT, Reis F, Rittner L, Appenzeller S. Magnetic resonance imaging in neuropsychiatric systemic lupus erythematosus: current state of the art and novel approaches. *Lupus*. 2017;26(5):517–21.
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Neuropsychiatric manifestations in systemic lupus erythematosus have been more frequently recognized and reported in recent years, occurring in up to 75% of patients during the disease course. Magnetic resonance imaging is known to be a useful tool for the detection of structural brain abnormalities in neuropsychiatric systemic lupus erythematosus patients because of the excellent soft-tissue contrast observed with MRI and the ability to acquire multiplanar images. In addition to conventional magnetic resonance imaging techniques to evaluate the presence of atrophy and white matter lesions, several different magnetic resonance imaging techniques have been used to identify microstructural or functional abnormalities. In this lecture we will review the main mimickers of CNS involvement in SLE and discuss different MRI techniques to diagnosis NPSLE.

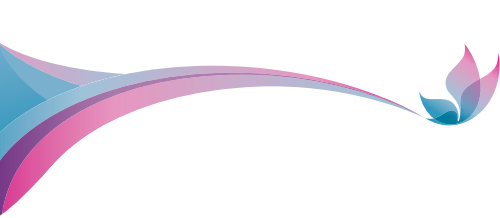
### Learning Objectives

- Identify main mimickers of CNS involvement in SLE
- Determine the utility of different MRI techniques to diagnose CNS involvement in SLE

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# About the Lupus Academy

## Mission

The Lupus Academy is a not-for-profit, long-term initiative committed to improving patient outcomes in SLE and allied diseases. By providing a highly interactive educational forum, the Lupus Academy is dedicated to sharing best clinical practice through the dissemination and discussion of cutting edge scientific and clinical research.

## Meeting organisation

The 7th Annual Meeting of the Lupus Academy has been developed under the control of the meeting Chairs: Professor Bevra Hahn (USA) and Professor Murray Urowitz (Canada), on behalf of the Steering Committee of the Lupus Academy, and with the support of the planning staff at Lupus Academy. It has been developed in Joint Providership with Siyemi Learning, an ACCME-accredited provider for CME compliance and certification. No other individuals or organisations have had any influence over the content of this meeting.

## Other educational activities

The Lupus Academy runs an Annual Meeting and several regional Roadshow Meetings each year. It also has an extensive library of presentations that are available to registered members, currently free of charge. The Lupus Academy is also developing a series of eLearning activities to support its educational goals. More information can be found at [lupus-academy.org](http://lupus-academy.org).

## Supporters

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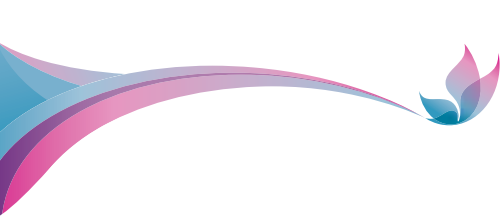
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Lupus Academy Foundation  
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The Netherlands



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