Patients with SLE have unique changes in serum metabolic profiles across age associated with cardiometabolic risk

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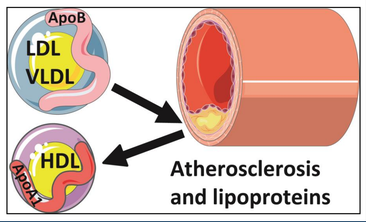
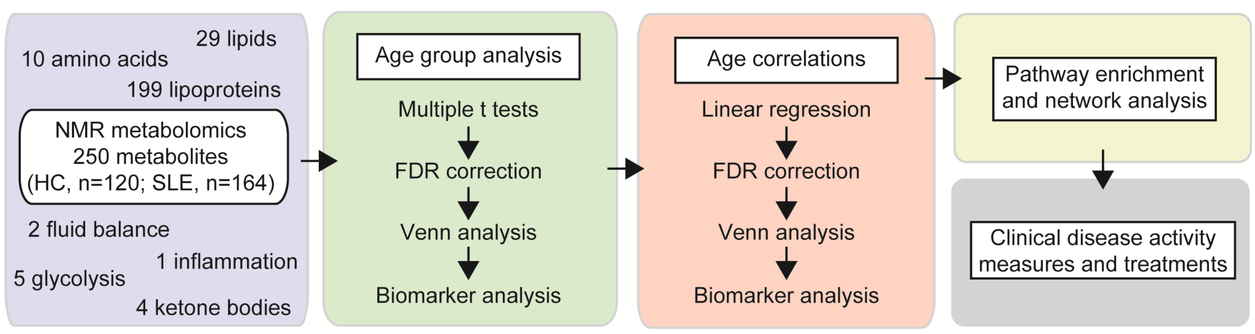
Introduction:

- **Cardiovascular disease (CVD)** is a leading mortality cause for patients with **systemic lupus erythematosus (SLE)** through **atherosclerosis**.
- The presence of **SLE in women** (around 90% of SLE patients) between the ages of 35-44 increases the **risk** of **cardiovascular disease** by **50 times**.
- **Age** is an independent **risk factor** for **CVD** in adults
- CVD risk is **exacerbated** by **SLE**-associated factors.
- **Inflammation**, **dyslipidaemia** and **metabolism**.
- This study investigated **age-associated changes** in **metabolomic profiles** of **women with SLE** vs HCs.



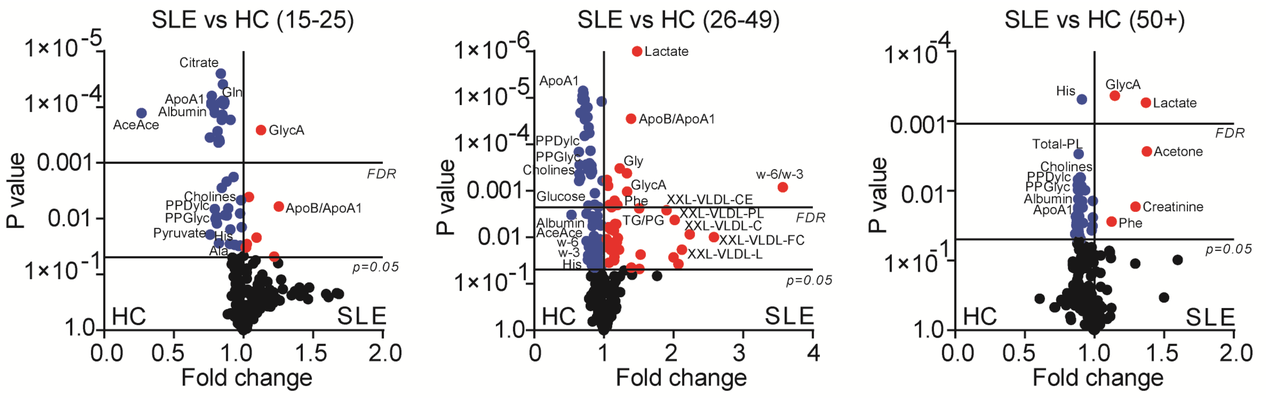
Aims/Methods:

Cohorts of women (HC or SLE):	HC (Full cohort)	SLE (Full cohort)	HC/SLE (≤25 years)	(HC/SLE) (26-49 years)	HC/SLE (≥50 years)
Total number	120	164	43/62	46/50	31/52
Median age, years (range)	35 (13-72)	36 (15-76)	20/19	38/38	65/57
White ethnicity	54%	40%	56/35%	67/34%	32/13%
Black ethnicity	7%	26%	5/26%	9/24%	6/52%
Asian ethnicity	9%	24%	23/31%	2/28%	1/27%
Other/unknown ethnicity	30%	10%	16/8%	22/14%	61/8%
Median disease duration, years	-	11	7	13	25

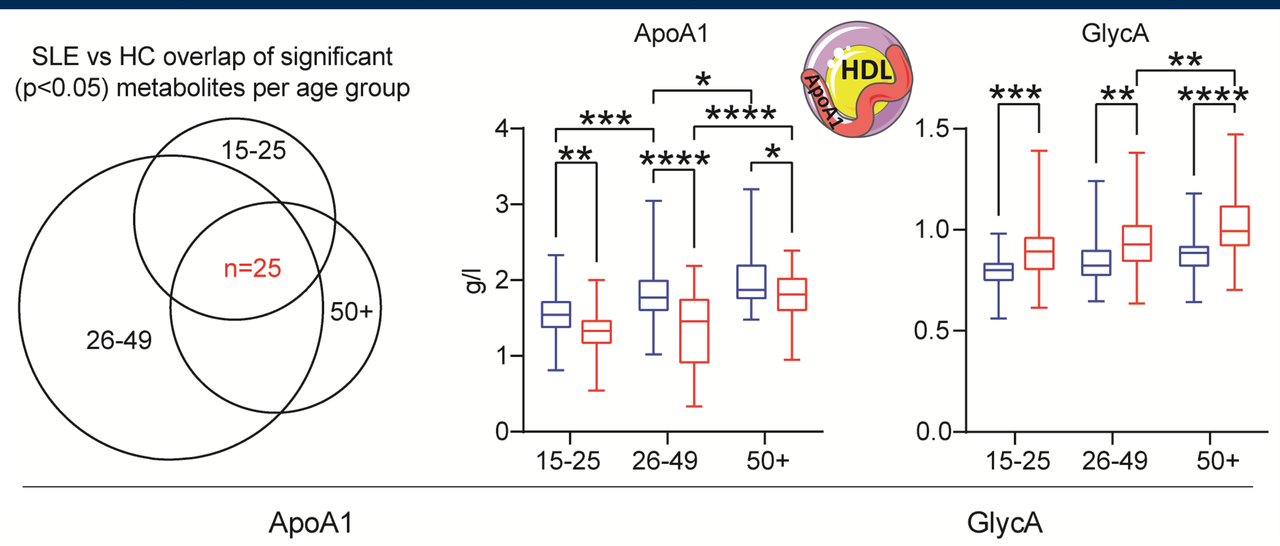


Results:

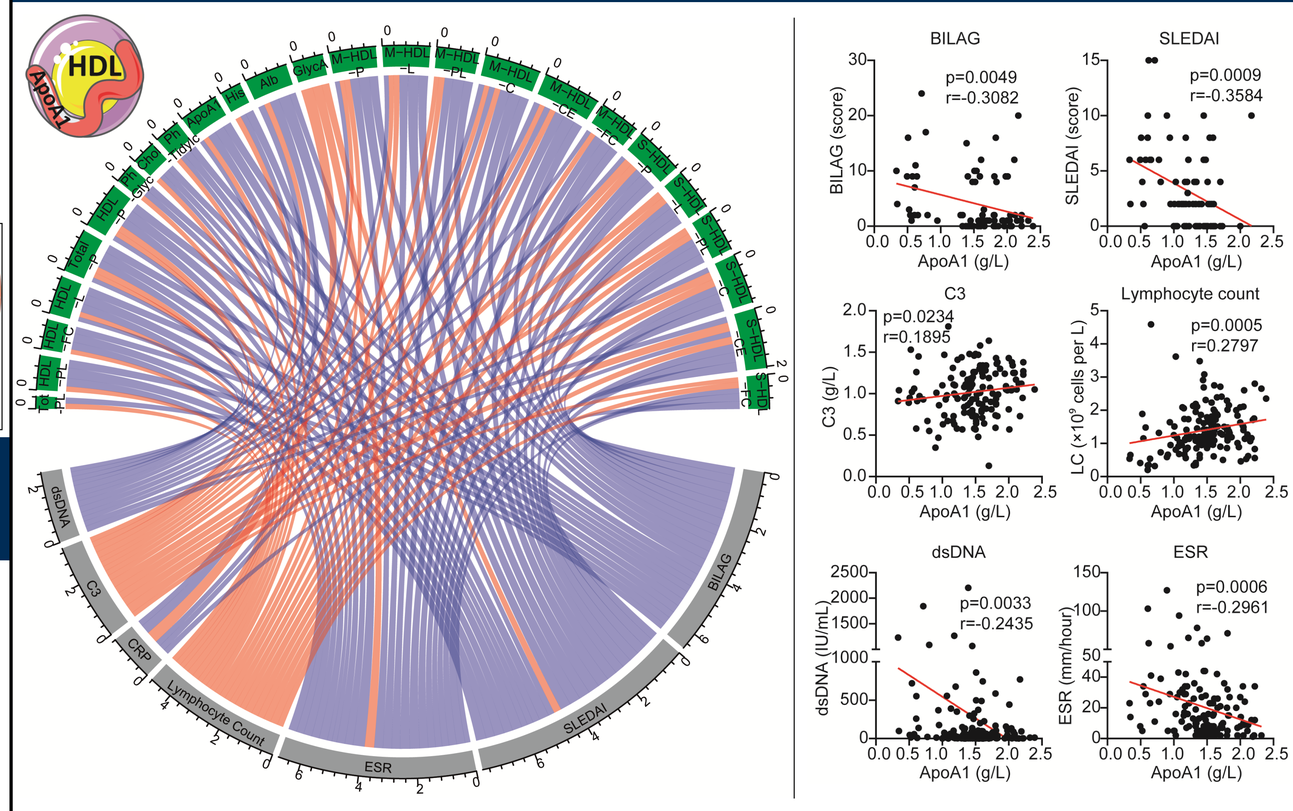
1. Metabolic changes are observed across age in SLE vs HC



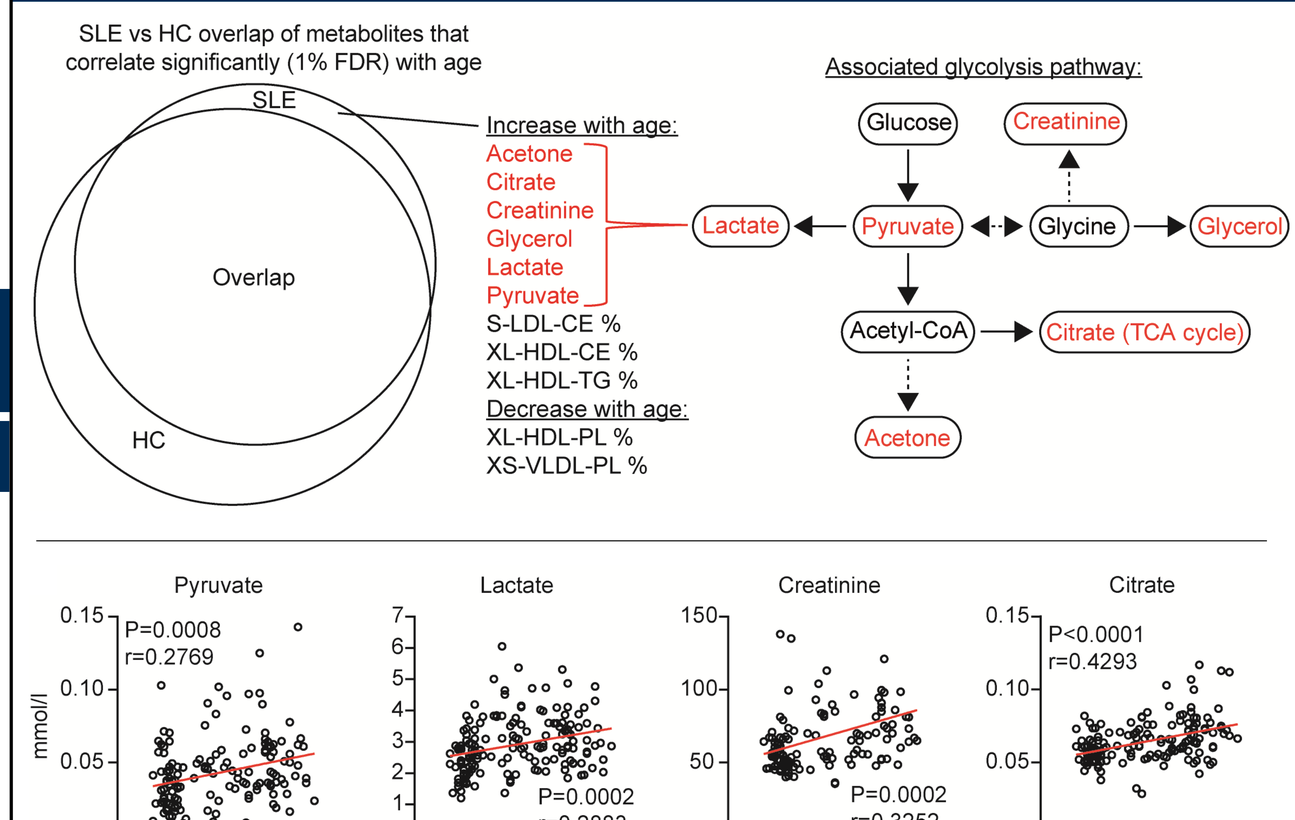
2. Different metabolic changes are seen by age group in SLE; ApoA1/HDL (72%) and GlycA are altered in all ages

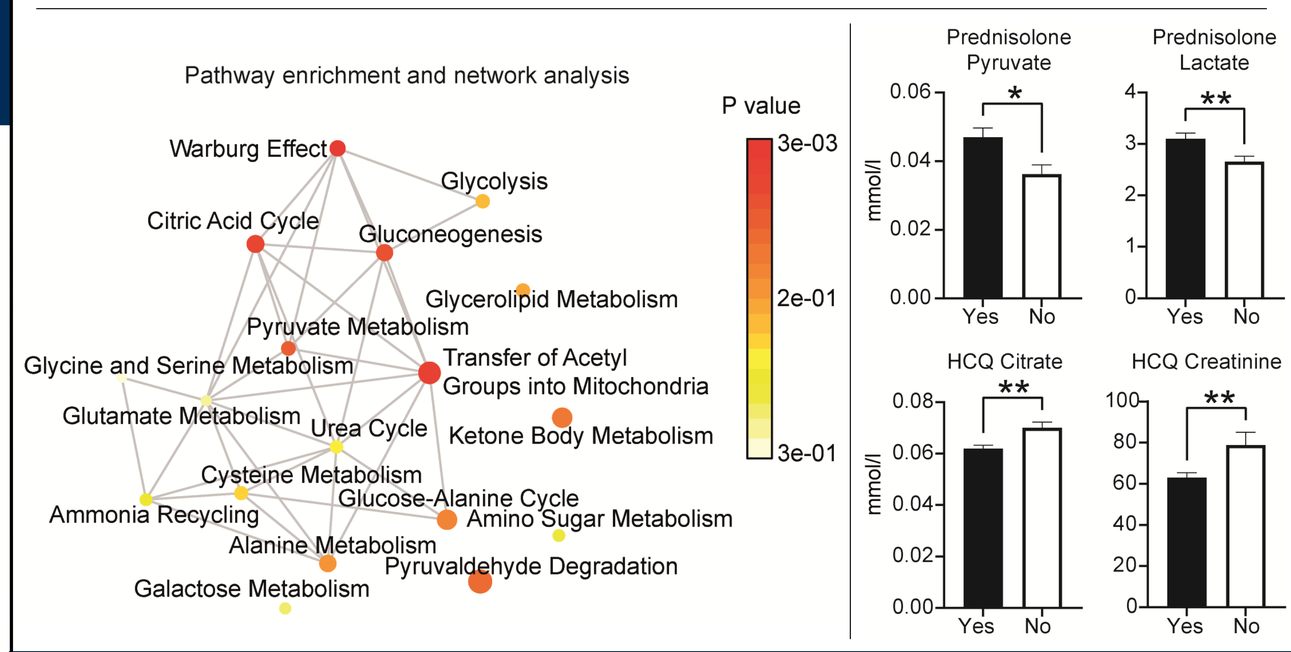


3. Metabolic defects common to all ages in SLE, including ApoA1/HDL subsets, are associated with disease activity



4. Metabolites that increase with age in SLE, but not HCs, are associated with glycolysis and different treatments





Conclusions:

- **Increasing HDL/ApoA1 levels, whilst maintaining low disease activity, in SLE patients from a young age could improve cardiometabolic outcomes and mortality.**
- **Metabolic biomarkers from the glycolytic pathway could decrease adverse metabolic effects of current therapies.**

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