

Arthritis Talks: Let's Talk Lupus

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Presenters



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Webinar tips

- Use the **Q&A** section to ask the presenters your questions. Some of the questions will be chosen for the live question period at the end of the webinar.
- Click on the **Chat** box to connect with other participants and the Arthritis Society's chat moderator.
- If you have further issues, email arthristalks@arthritis.ca



Overview

[1]

What is lupus



[2]

Complexity of lupus



[3]

Q&A



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What is lupus and who is at risk?



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- ▼ **Consultant/ Advisory Boards for:**
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 - ▼ Roche



What is lupus and who is at risk?

Lupus is a chronic systemic autoimmune disease

Chronic:

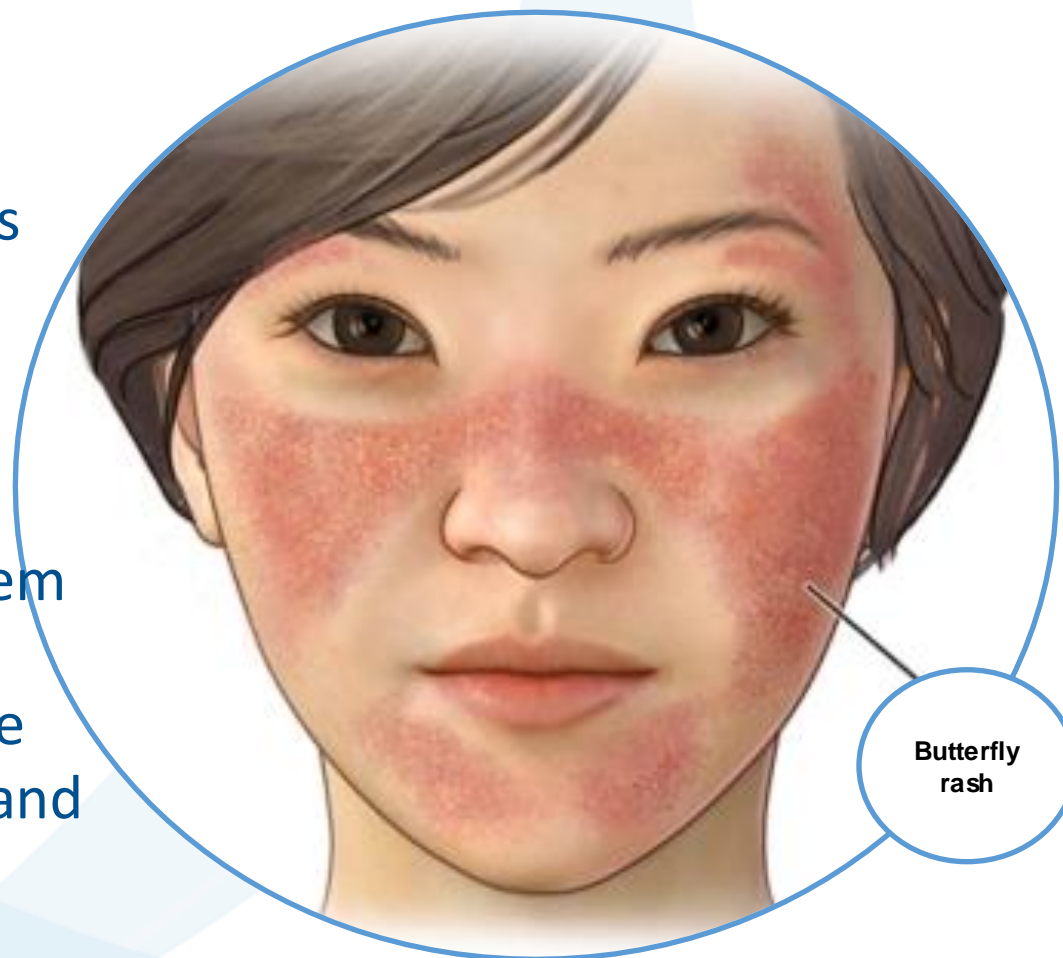
- There is no cure
- It rarely disappears on its own

Systemic:

- Affects the entire body

Autoimmune:

- the body's immune system attacks itself because it cannot tell the difference between healthy tissue and foreign invaders



85-90% of people who have lupus are women

Most commonly starts in young people between 15-44 years old

- Can affect any age

More common and more severe in Black, Indigenous, Latina, and Asian people



What are the early signs and symptoms of lupus?

Lupus can show up in many different ways, and mimic symptoms of other diseases, making it hard to diagnose

- Fatigue or extreme exhaustion
- Muscle and joint pain or swelling
- Skin rashes
- Fever
- Hair loss
- Recurring mouth sores
- Sensitivity to the sun
- Lung problems



Joint inflammation

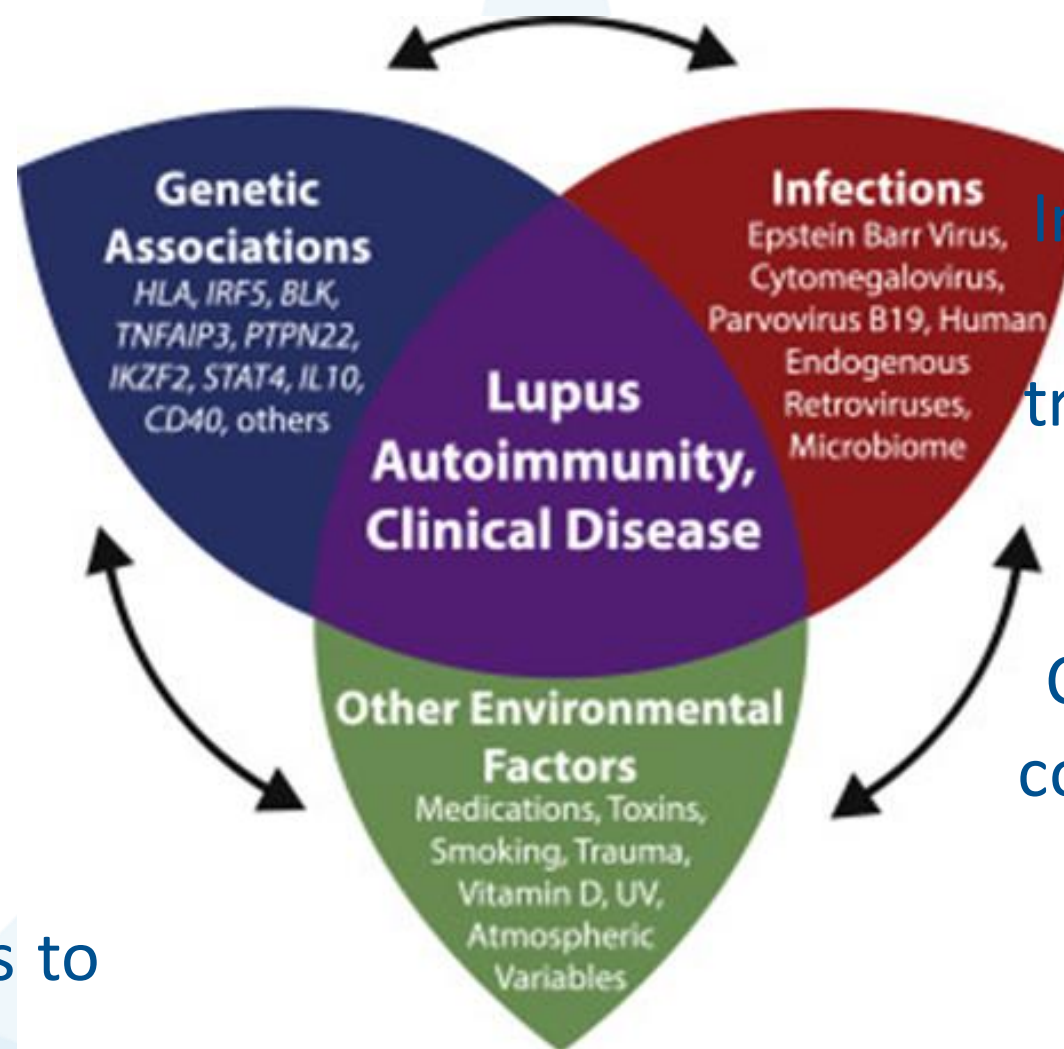
- Pleuritic Chest pain
 - Raynaud's
- Heart problems
- Kidney problems
 - Psychosis
 - Blood and immunological abnormalities
- Eye diseases
- Memory problems



What are the risk factors for lupus?

Genetics:

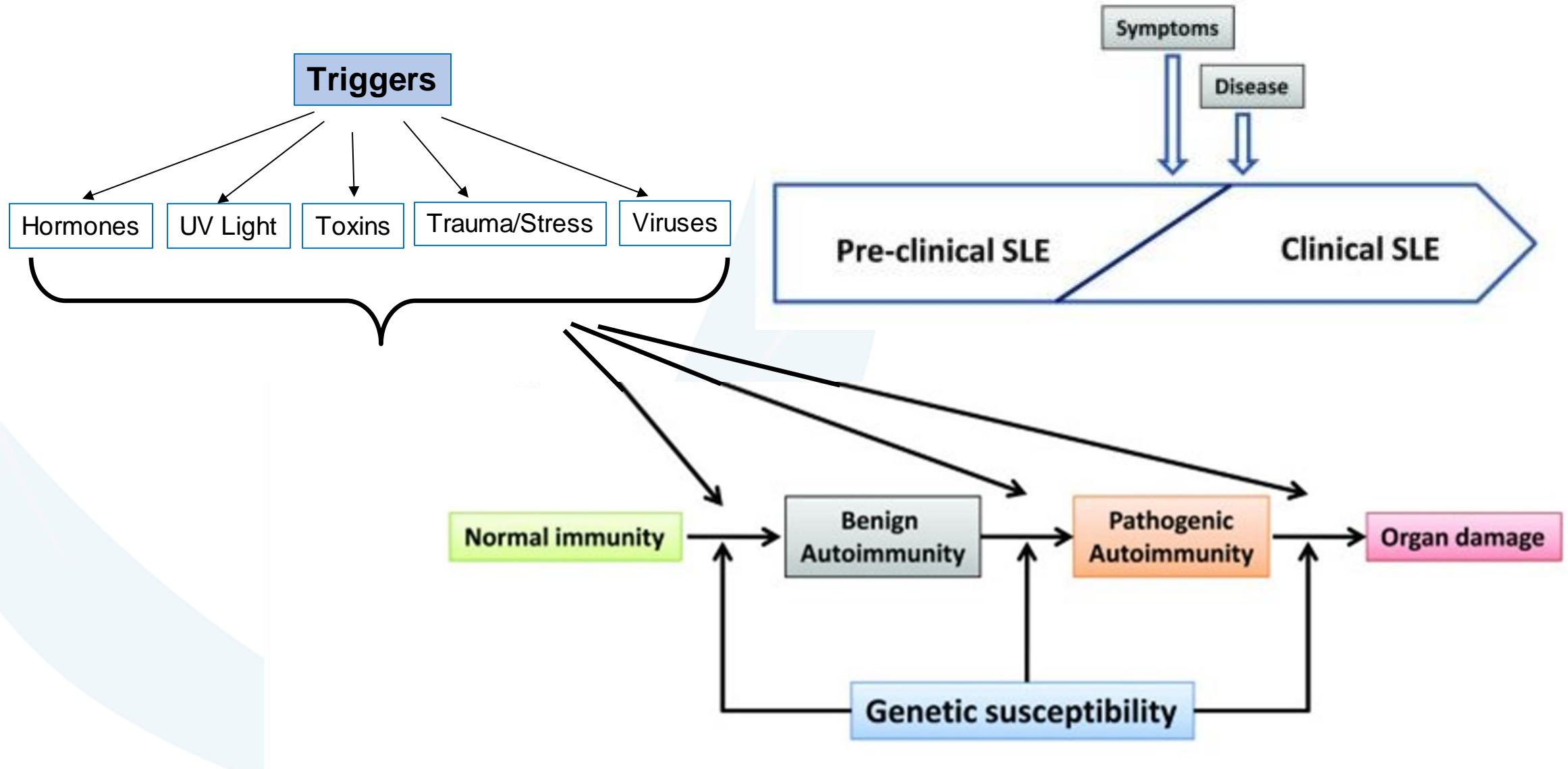
- Many genes acting together
- Different genes in different people with lupus
- Each contribute a small amount and combine allow lupus to develop



Infections, UV light, toxins, smoking, pollutants can trigger the immune system

Chronic stress and trauma contribute to inflammation and can trigger lupus

Lupus Development



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How is lupus diagnosed?





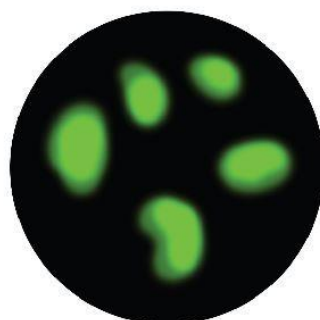
How is lupus diagnosed?

Lupus is a clinical diagnosis

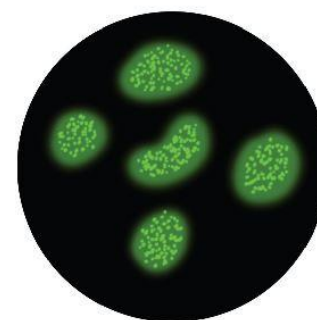
There is no single test for SLE.

- To diagnose SLE, a doctor will take into account:
- Symptoms
- Signs observed during physical exams
- Results lab tests, X-rays, other images, and biopsy results.

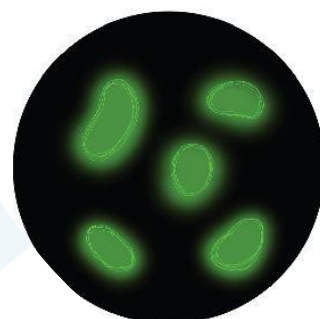
Antinuclear Antibody Test
Flourescence Patterns + Intensity



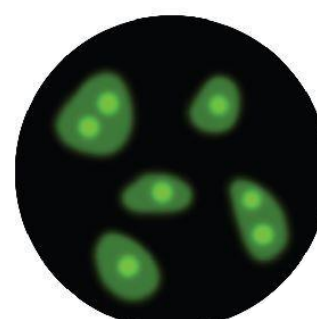
Homogenous



Speckled



Peripheral

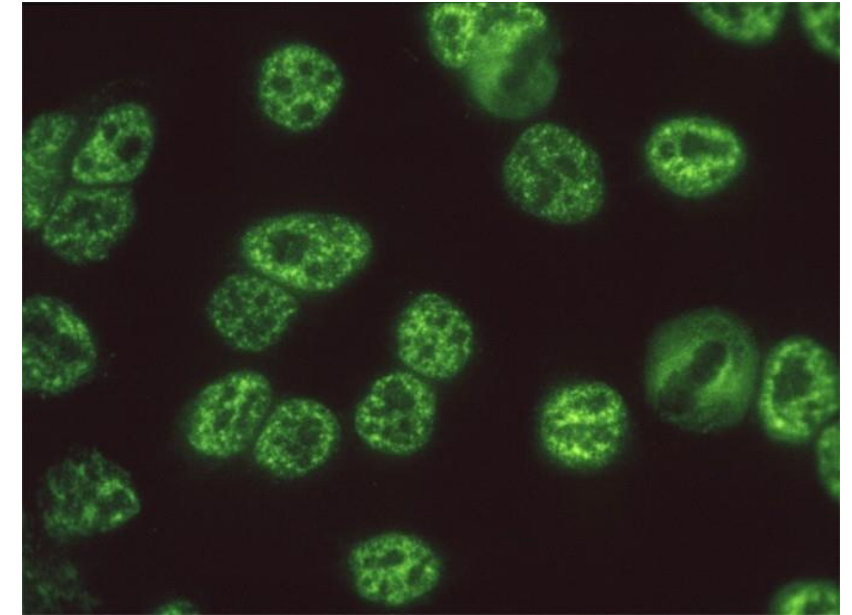


Nuclear

- SLE may be hard to diagnose because its signs and symptoms are not specific and can look like other diseases.
 - SLE may also be misdiagnosed, so it is important to see a specialist for confirmation.

The ANA test:

- ▼ ANA or **Anti-Nuclear Antibody** is an antibody directed against parts of the cell nucleus
- ▼ **ANA+ does not equal lupus!**
 - ▼ Highly sensitive but poorly specific
- ▼ ANA can be seen in up to 33% of healthy adults, and must be interpreted together with signs, symptoms and other tests
- ▼ The ANA test is not helpful in tracking lupus or predicting flares



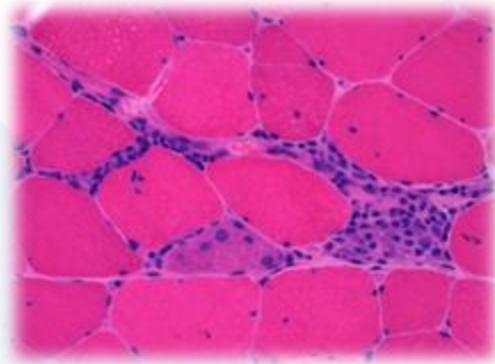
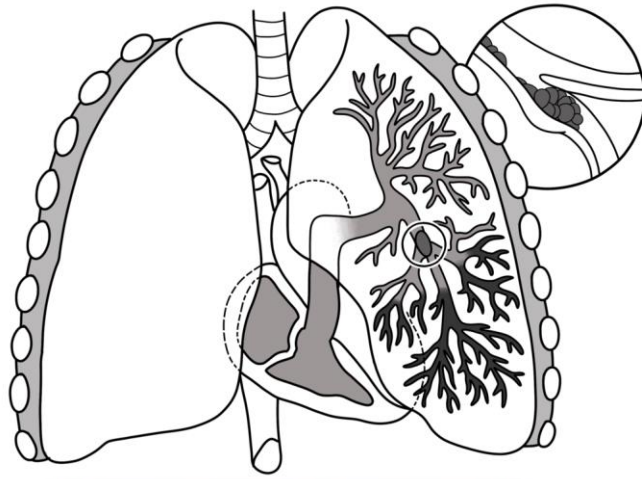
- ▼ Using fluorescence microscopy, and serial dilution an ANA pattern and titer are reported.
- ▼ The higher the titer the more likely significant

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What makes lupus so complex?



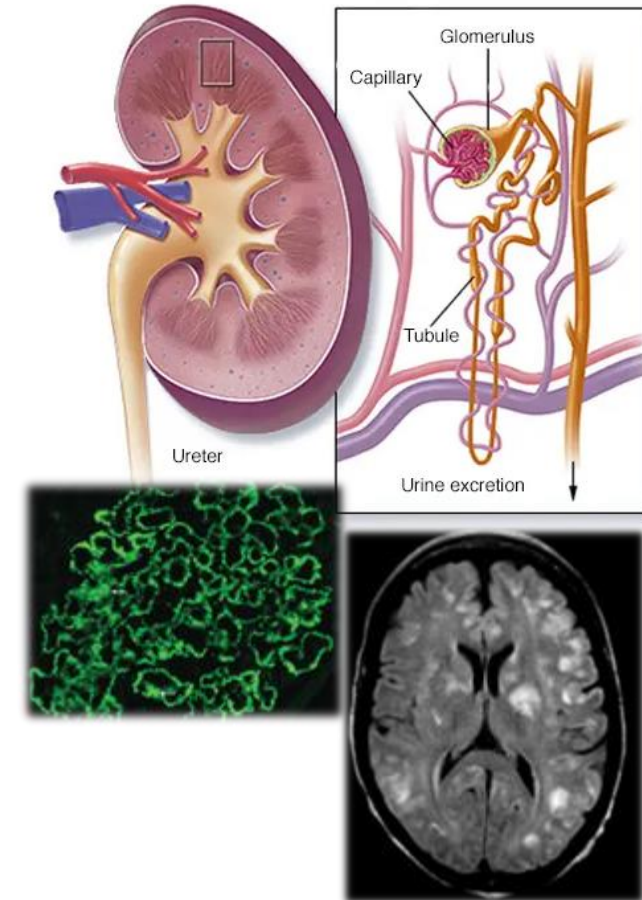
What make lupus so complex?



A 44 year old man with a blood clot in his lungs (pulmonary embolism) and muscle weakness and inflammation(myositis)



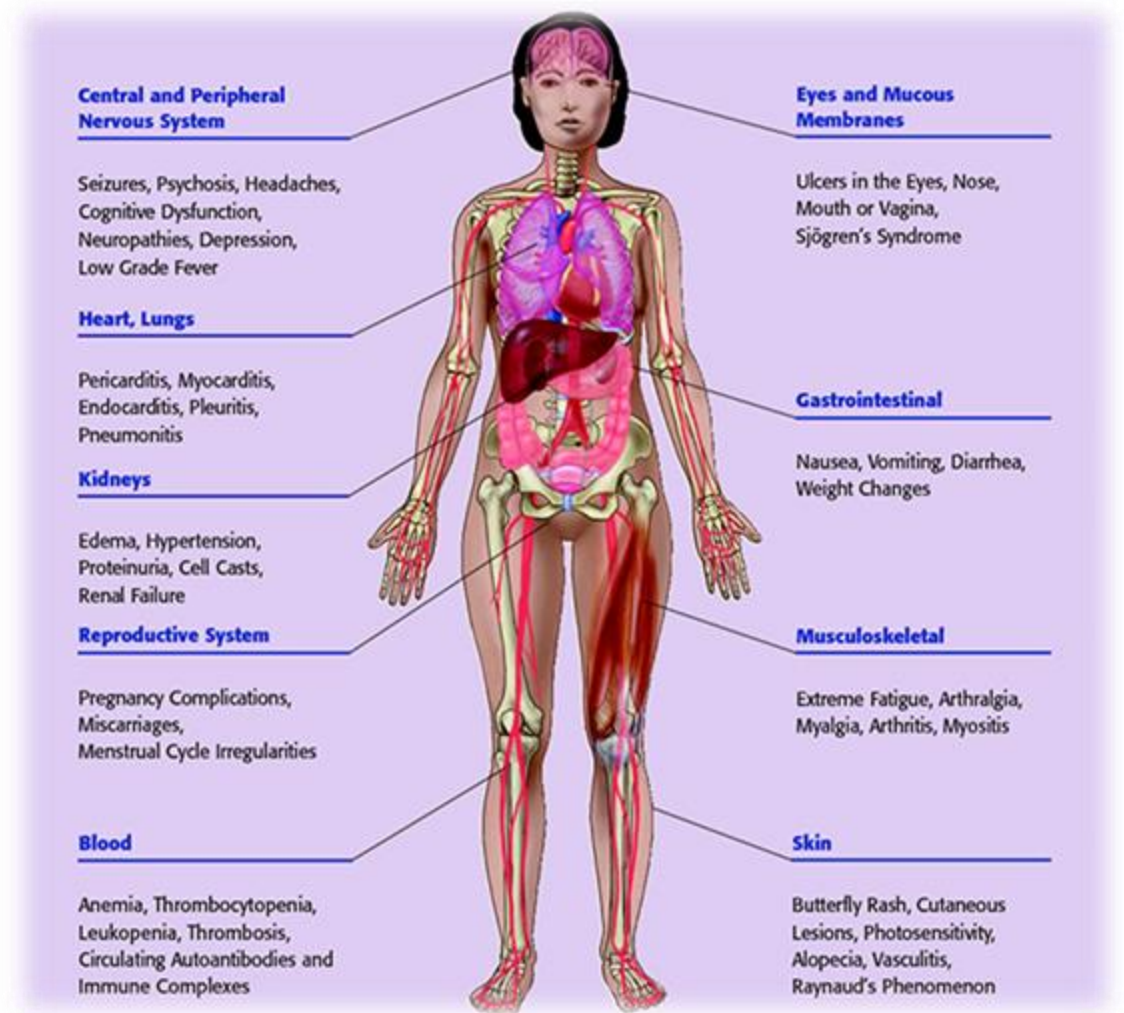
A 35 year old woman with arthritis and a facial (malar) rash



A 13 year old girl with kidney inflammation (nephritis) and seizures and confusion

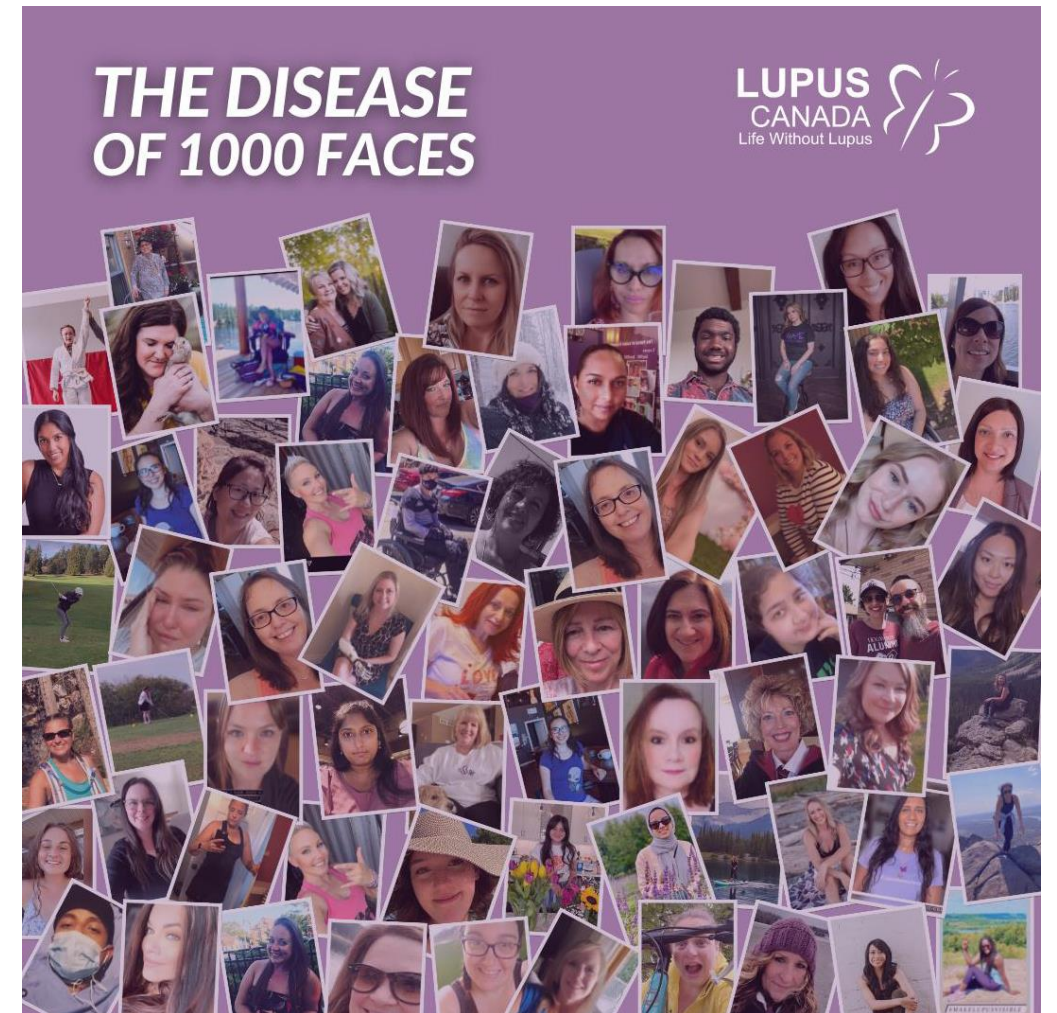
Lupus can affect any organ in the body

- ▼ Different people will have different organ systems affected
- ▼ The different systems affected can happen at different times, not infrequently years apart
 - ▼ Example:
 - ▼ low platelet count year 1
 - ▼ Joint pain year 3
 - ▼ Rash year 4



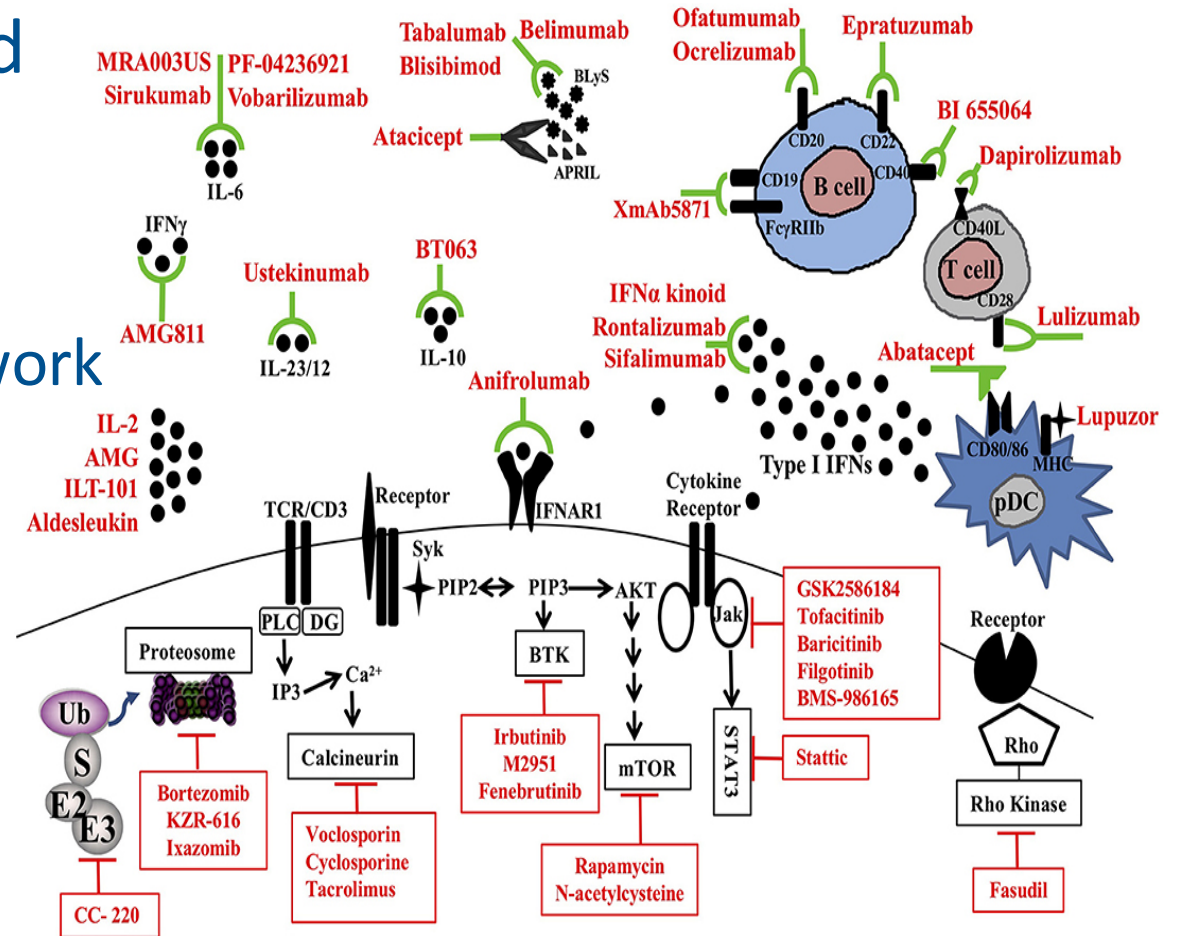
Lupus can look different in the same person at different times

- People with SLE can have periods of lupus symptoms called **flares**, followed by symptom-free periods, or periods of minimal symptoms called remissions.
- Flares can be frequent , or years apart, and can vary in severity form mild to life threatening.
- Common flare triggers:
 - Infections
 - Stress: emotional or physical trauma, such as surgery accidents or emotional distress.
 - Sunlight/UV exposure
 - Pregnancy
 - Fatigue



Lupus Treatment is Complicated!

- ▼ Different lupus manifestations are treated with different drugs:
 - ▼ A drug that works for lupus arthritis may not work for kidney lupus
 - ▼ A drug that works for lupus rashes may not work for lung inflammation
- ▼ Different levels of disease activity require different drugs, different doses, and more than one drug at the same time
 - ▼ Induction treatment
 - ▼ Maintenance treatment



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What excites you about the future of lupus research and treatment?



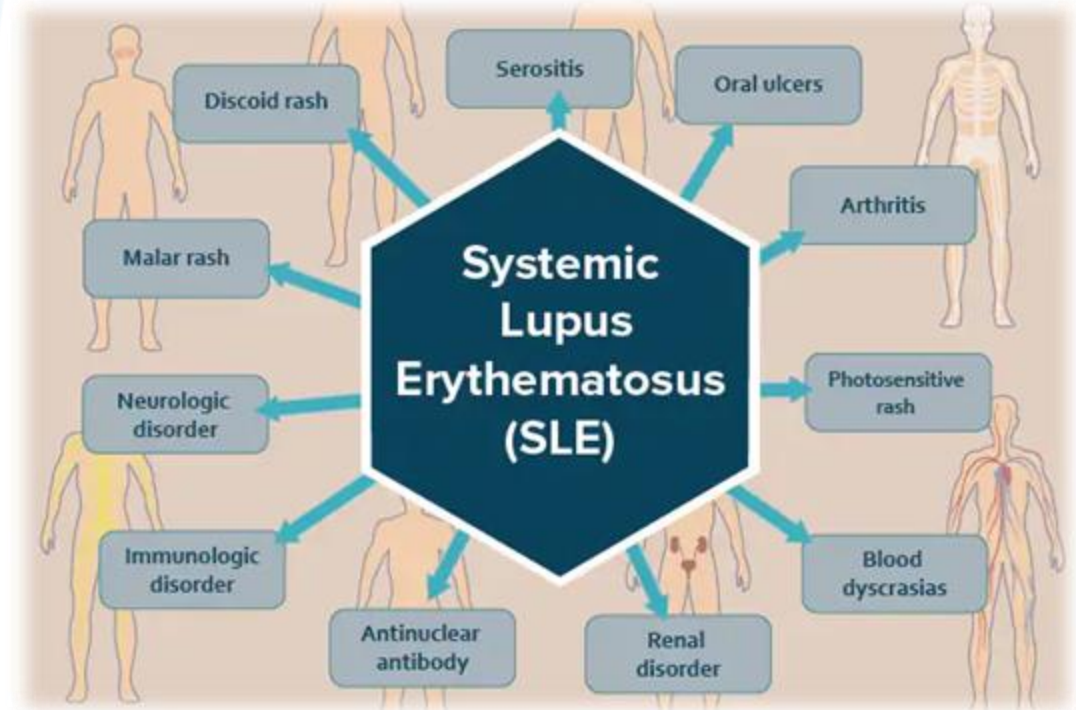
New treatments!!

- ▼ Anifrolumab for active lupus
- ▼ Belimumab for Lupus nephritis

Health Canada approved, and CADTH recommended for funding
WOOHOO!!

- ▼ Atacicept
- ▼ Voclosporin
- ▼ Rapamycin
- ▼ Obinutuzumab
- ▼ Upadacitinib
- ▼ Many more

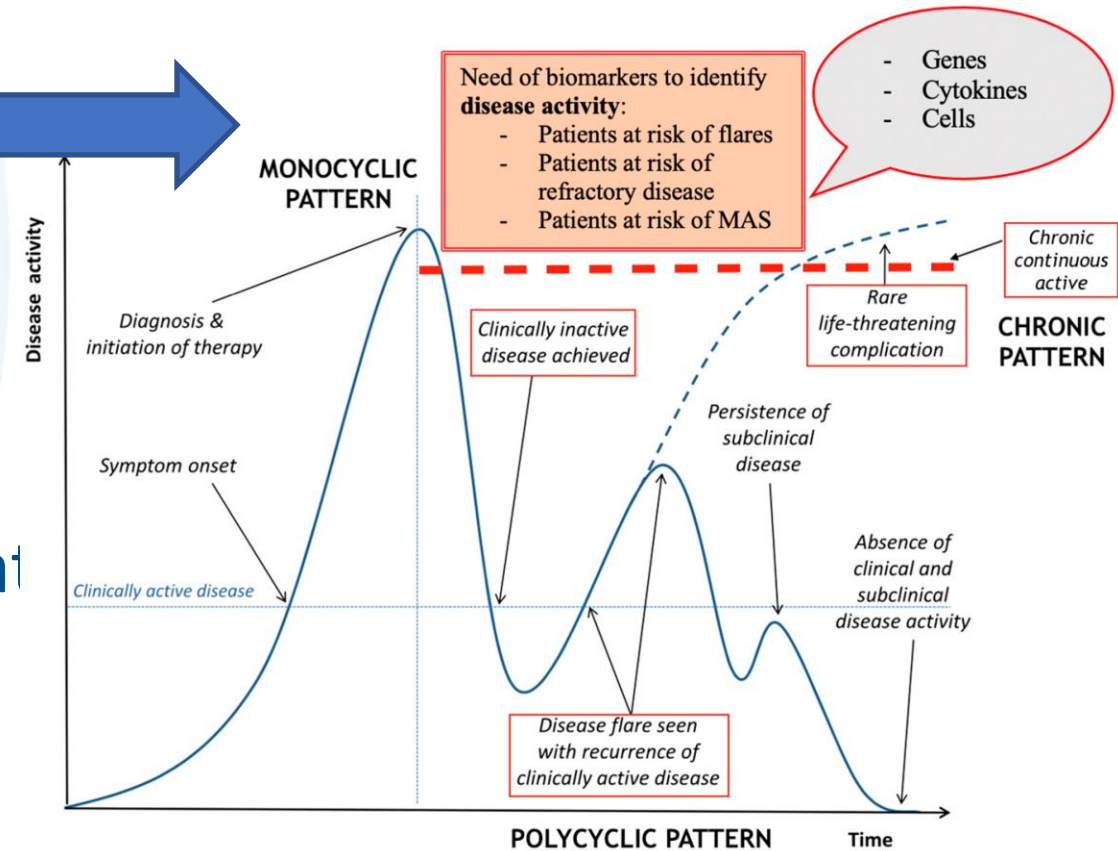
In the pipeline



Advances in understanding the molecular biology of SLE

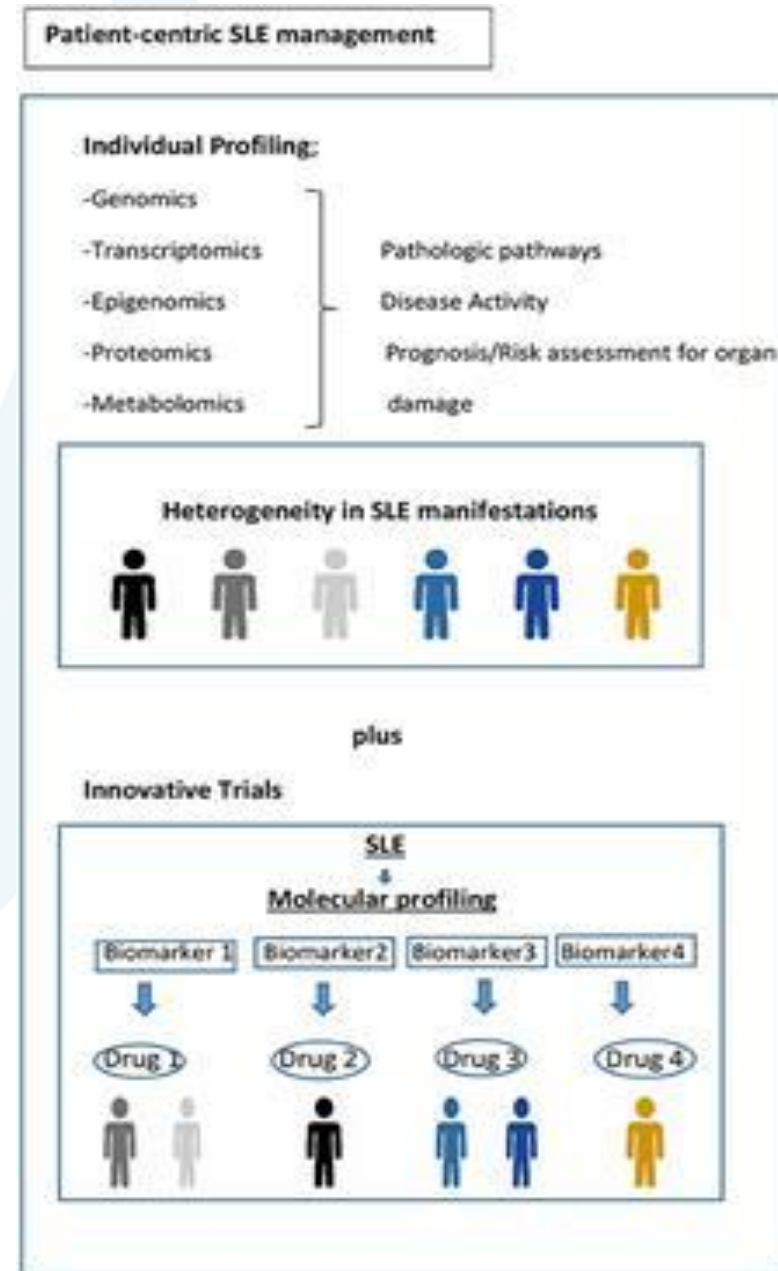


- ▶ We need better understanding of SLE at individual level
 - ▶ Predict flares
 - ▶ Predict severity
 - ▶ Predict manifestations
 - ▶ Target treatment



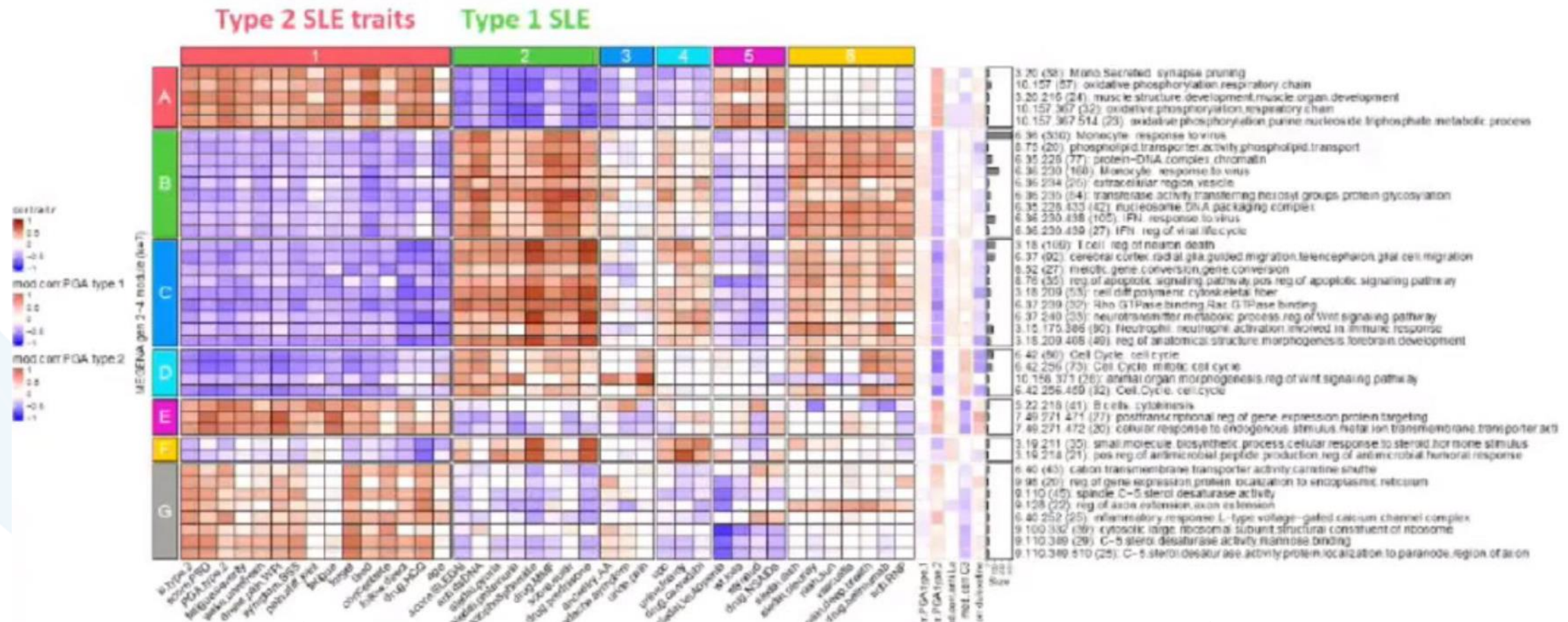
Advances in understanding the molecular biology of SLE

- ▼ The goal is therapy targeted to the individual patient rather than 'generic' therapy



Example:

Gene co-expression analysis identified 40 distinct Type 1 and Type 2 SLE gene modules signatures, and clusters ME correlations to clinical findings and lab assays unique to type 1 & type 2 SLE patients. These 40 signatures were used to interrogate all subsequent studies.

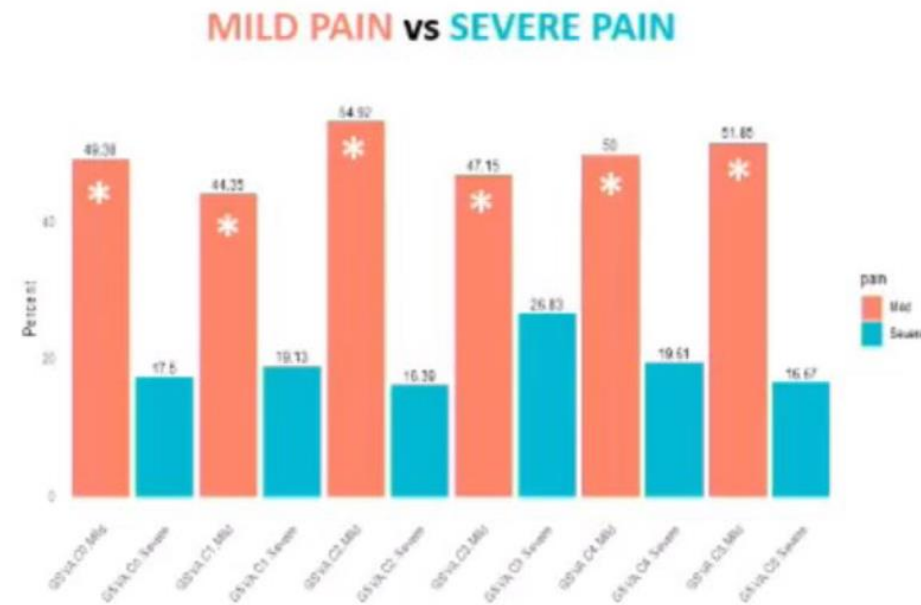
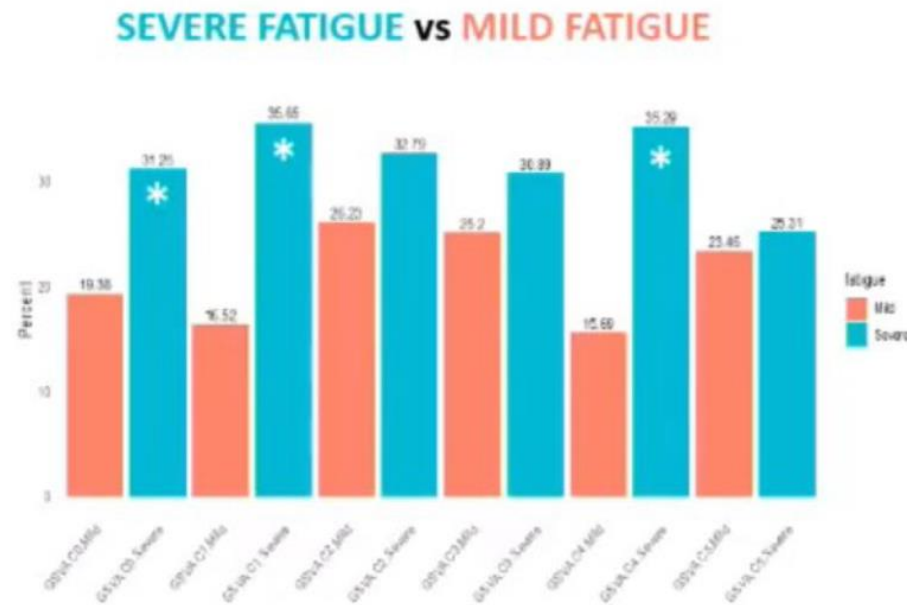


Robt R, Eudy A, Bachali P, Rogers J, Clowse M, Pisetsky D, lipsky P. The Molecular Endotypes of Type 1 and Type 2 SLE [abstract]. Arthritis Rheumatol. 2022; 74 (suppl 9). <https://acrabstracts.org/abstract/the-molecular-endotypes-of-type-1-and-type-2-sle/>. Accessed January 5, 2023.

This molecular signature was able to separate patients with severe vs mild pain, and severe vs. mild fatigue.

Type 1 and 2 SLE gene co-expression modules identified patients with severe fatigue and mild pain in ILLUM-2 active lupus patients

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Patient clusters marked as (*) exhibit a significant ($p < 0.05$) difference between the frequency of severe and mild fatigue or pain, respectively.

Ultimately if we have a detailed understanding of the CAUSE of a symptom/manifestation, we can develop a treatment for it.

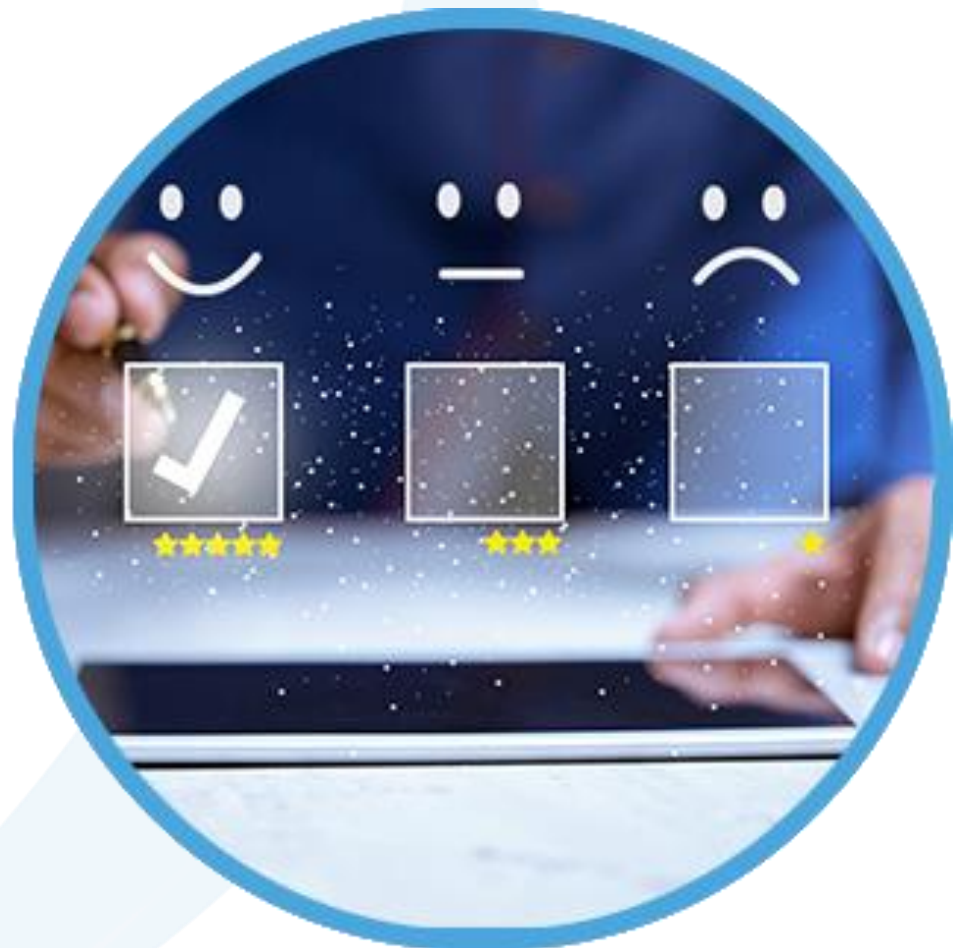
Any final thoughts or recommendations?



Questions



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