



# Biomap

Biomarkers in Atopic Dermatitis and Psoriasis

## What is happening in the skin when its inflamed?

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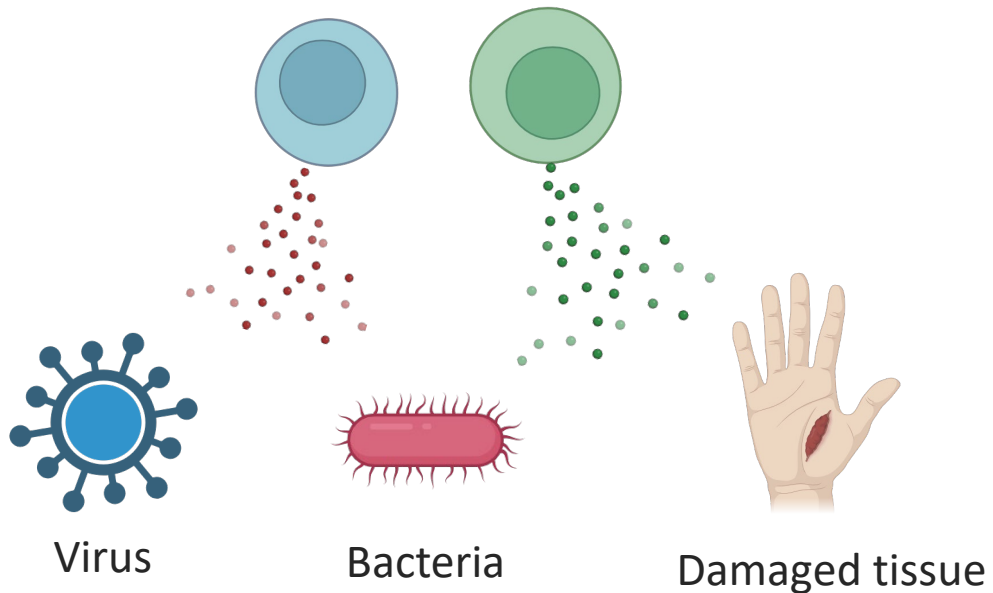


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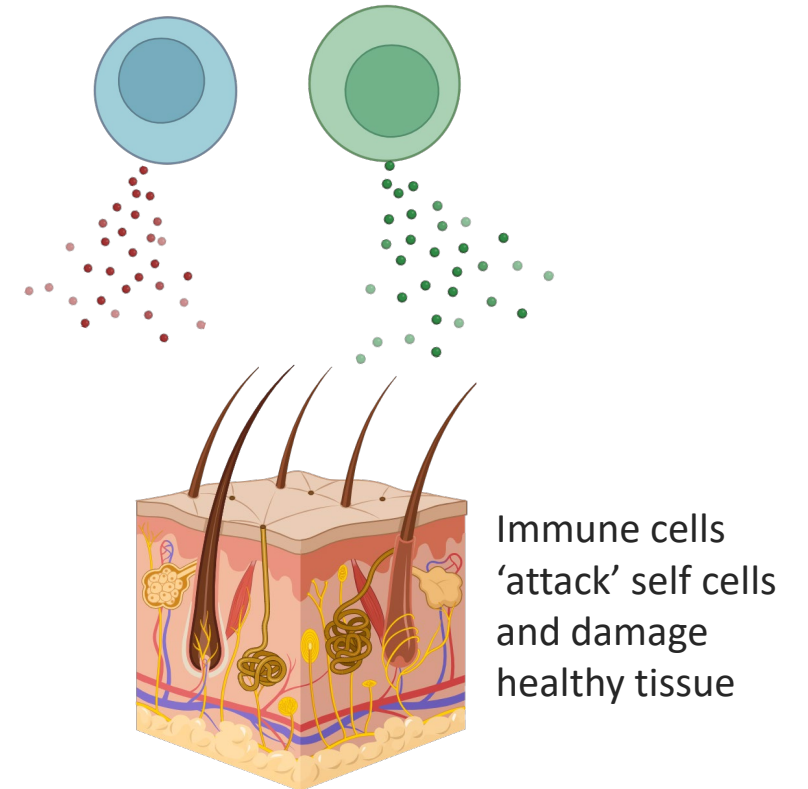
# What is inflammation?

Inflammation is a normal part of the body's response to injury or infection.

Specialised cells in the body release chemicals that trigger an immune response to fight off infection or heal damaged tissue.



However, when things go wrong you can develop inflammatory autoimmune diseases



## What is happening in the skin when its inflamed?

- Skin inflammation is often clearly visible from the outside.

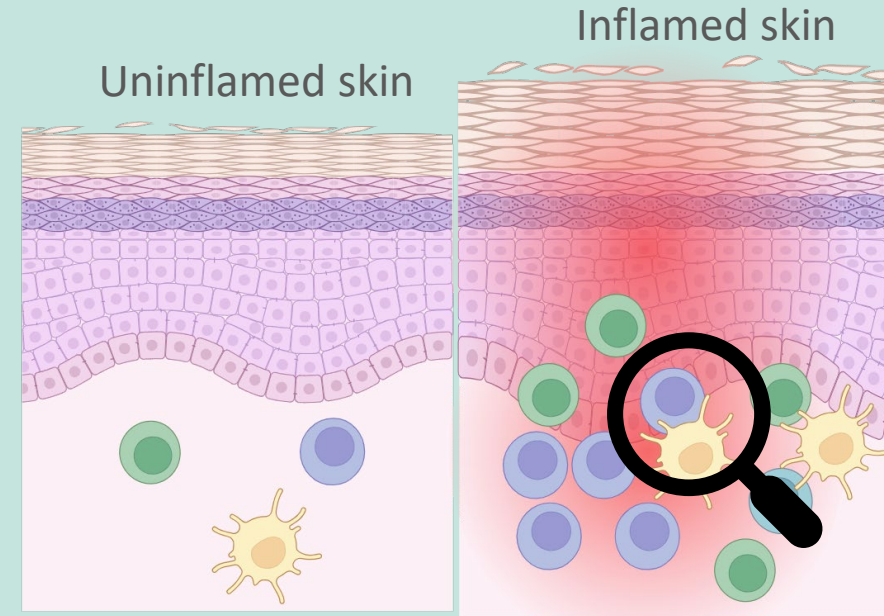
Psoriasis



Eczema



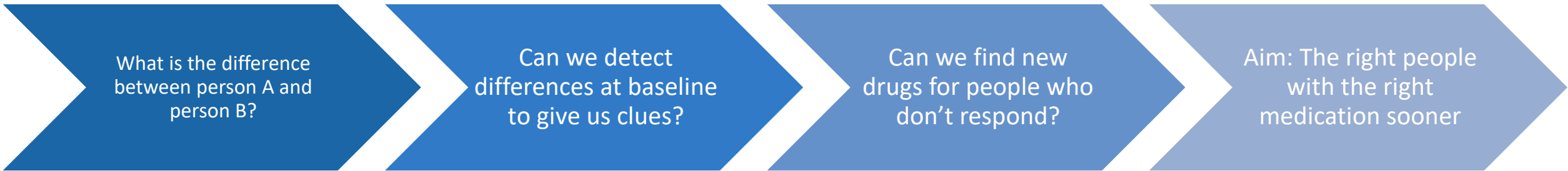
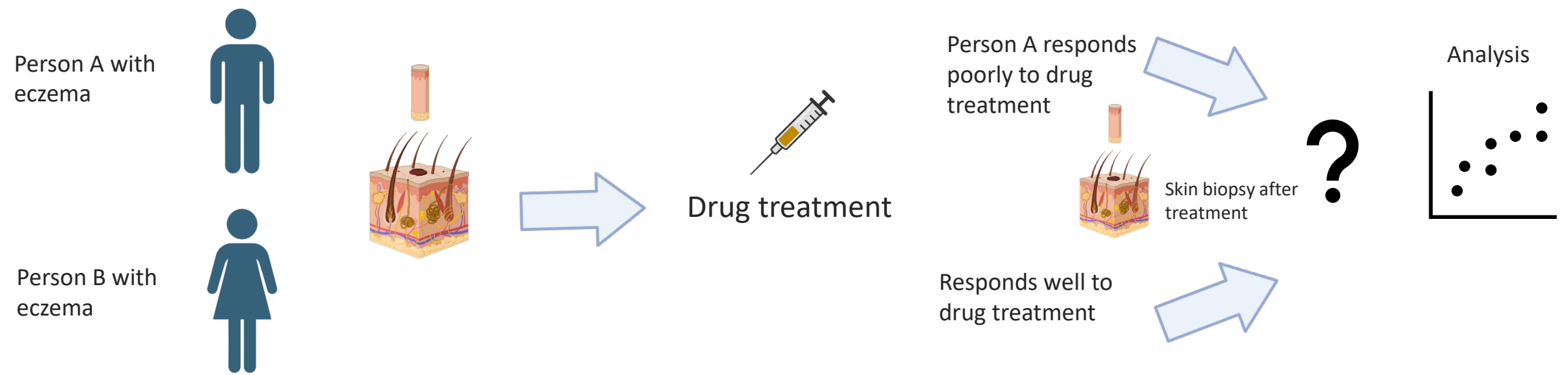
- But the things causing the visible signs of inflammation are below the surface.



### Aim within BIOMAP:

To understand in more detail how these cells 'look' and 'behave' in the tissue.

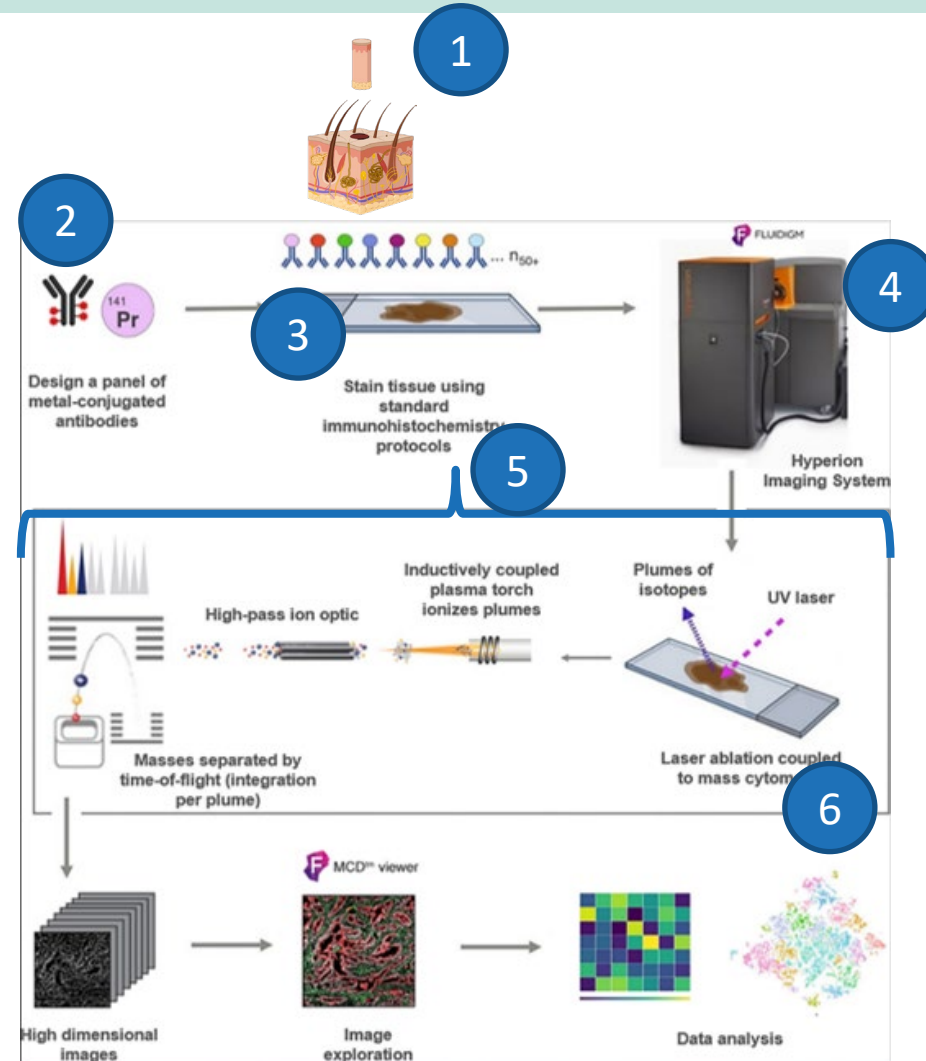
# Why do we ask for biopsies in research and clinical studies?



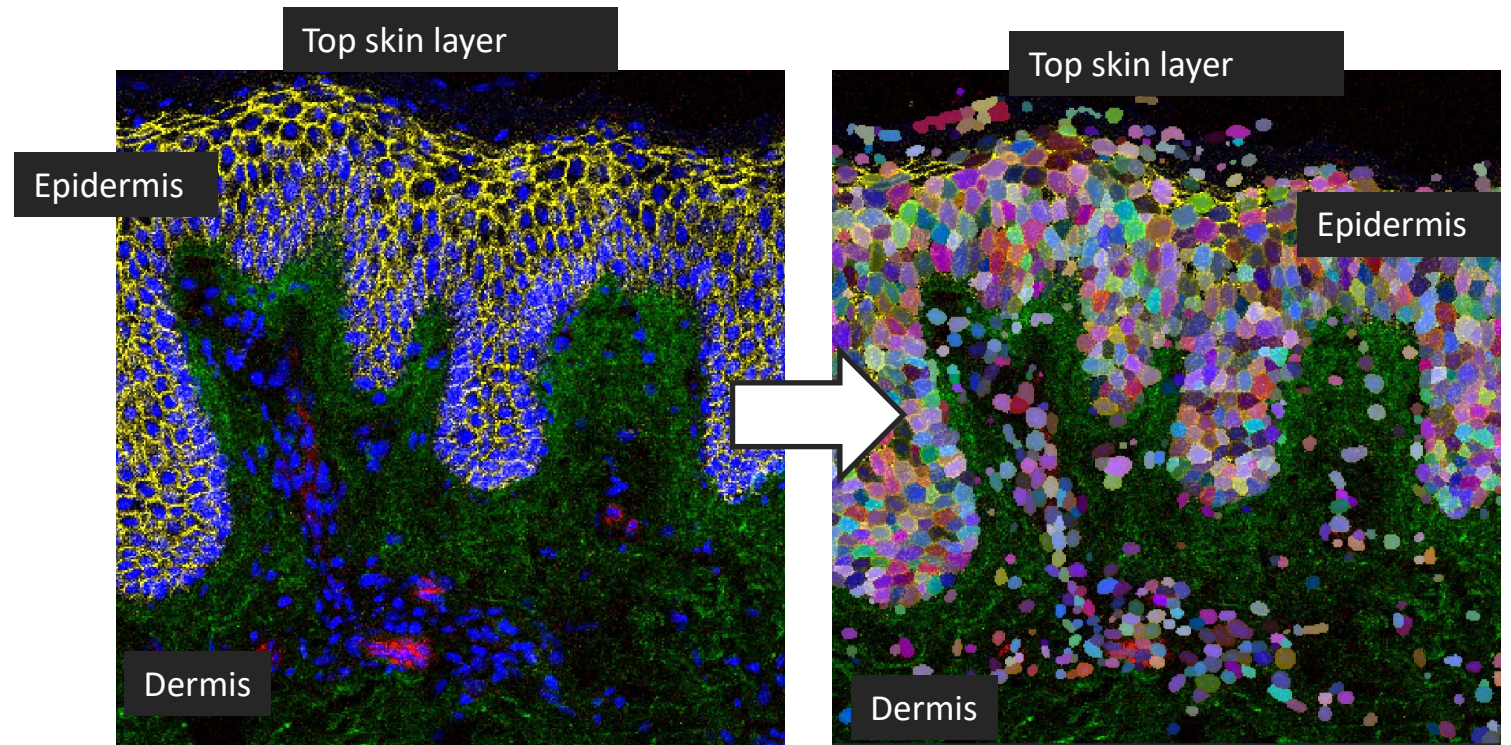
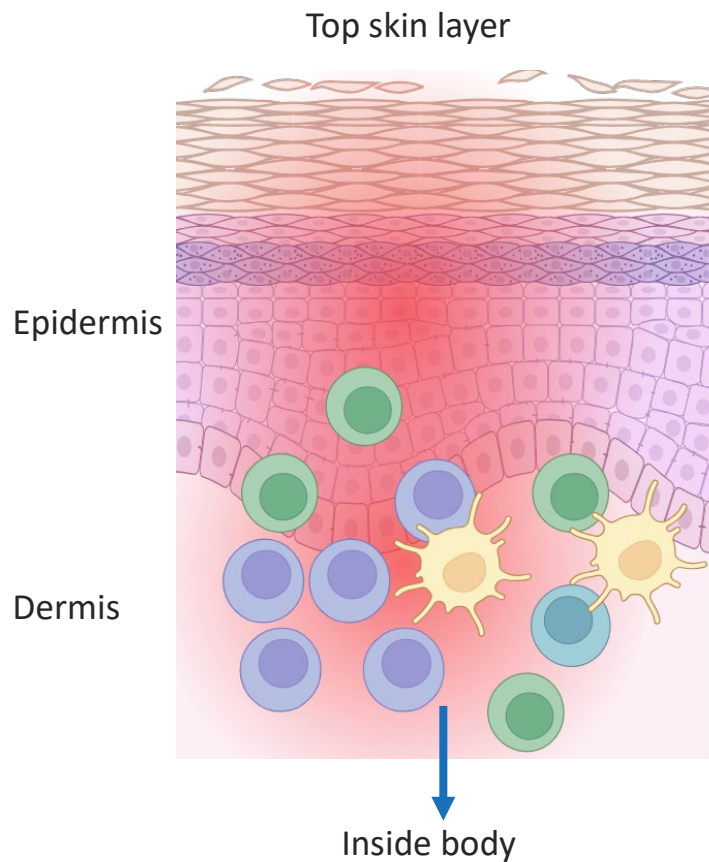
# What have we done in BIOMAP with biopsies?

One technology we have used is called imaging mass cytometry

Imaging mass cytometry allows us to look at immune cell populations and skin structure proteins in skin biopsies from people with eczema and psoriasis.



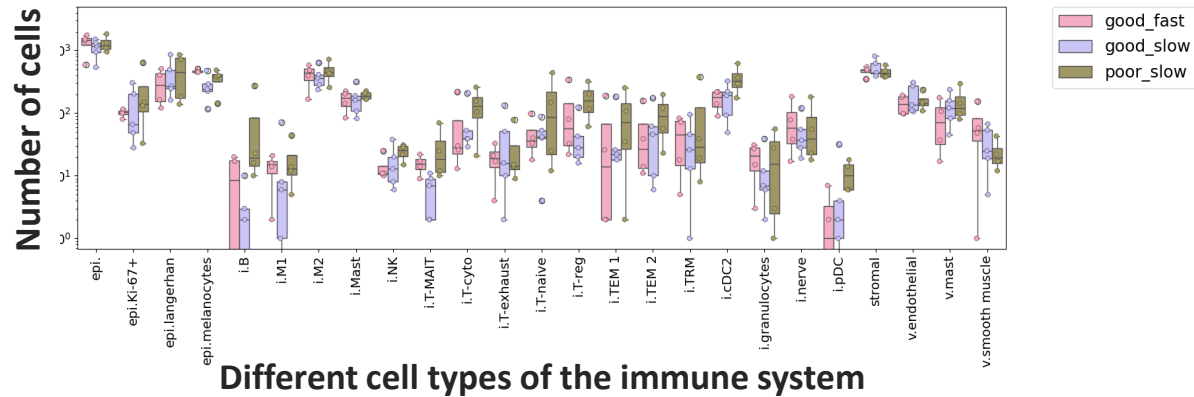
# Examples of the types of data we have generated with this technology



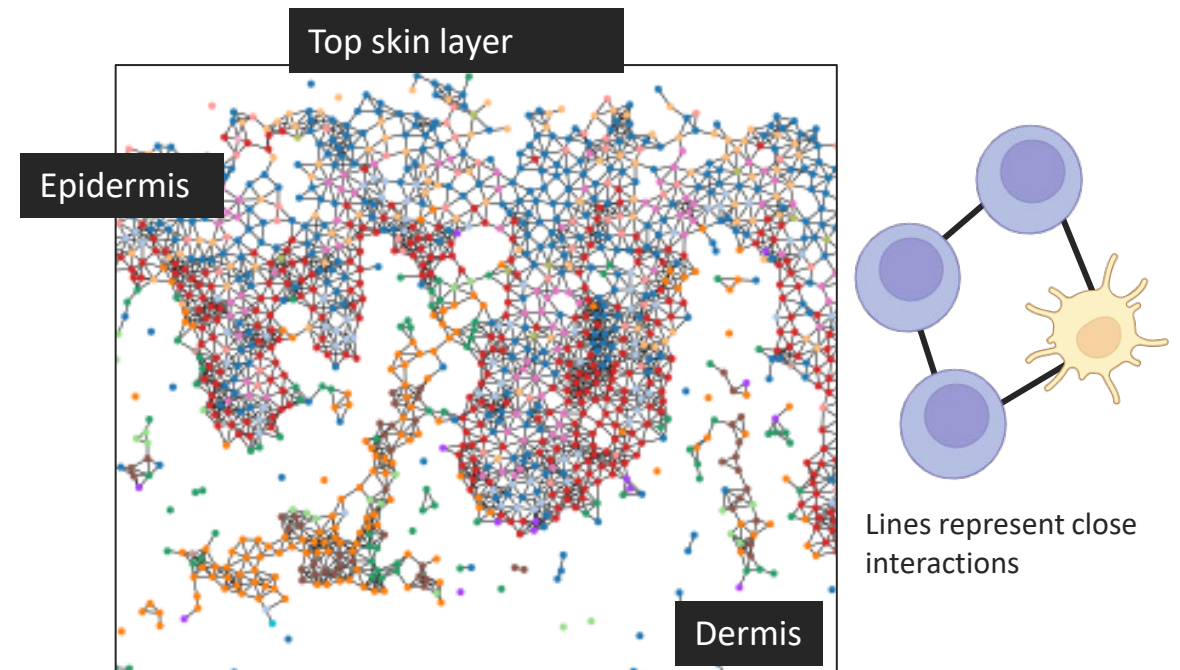
Each cell is coloured differently which allows us to look at the information on a cell level

# Examples of the types of data we have generated with this technology

We were able to put data from different skin samples into groups depending on the person's response rate to drug



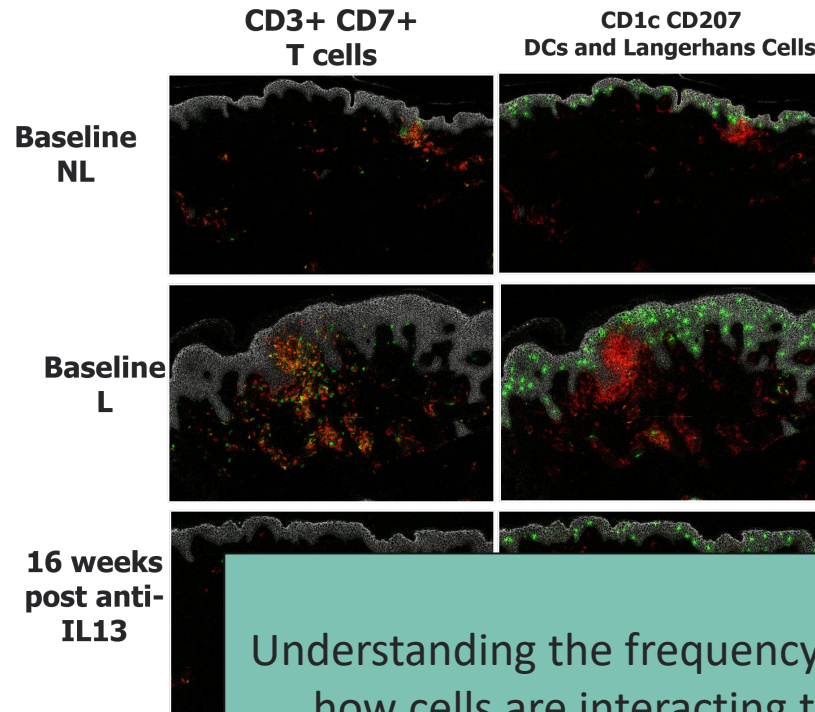
We were able to see interactions between cells in the skin



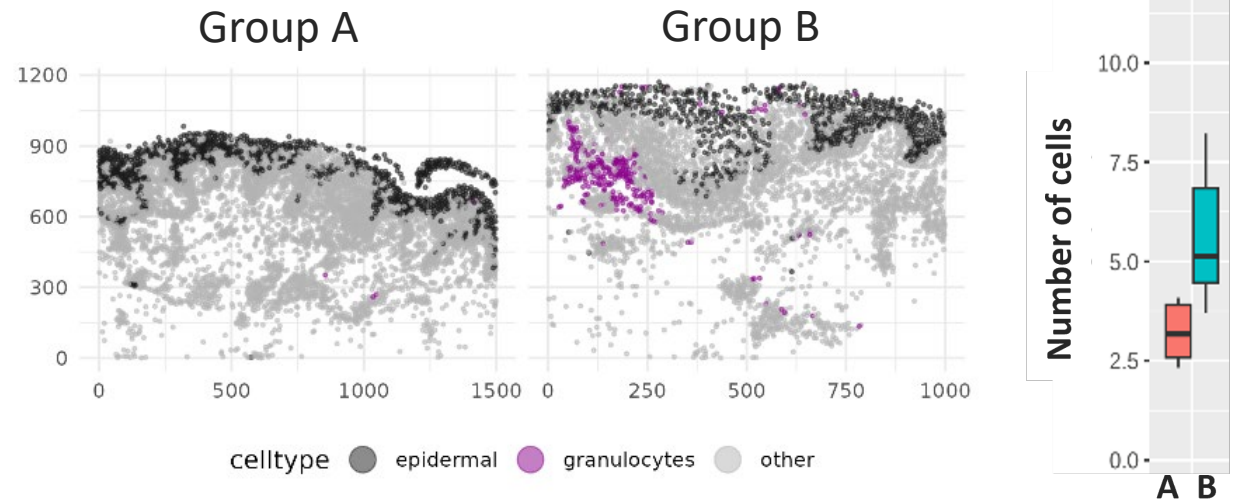


# Key findings from BIOMAP

We are able to see differences in immune cells between lesional, non lesional and post treatment samples



We have identified a particular cell type called a 'granulocyte' that seems to be interacting more in the epidermis in some people.



**What have we learnt**  
Understanding the frequency of cells in the skin is not enough and we need to also understand how cells are interacting to build a more complete picture of what is going on in the skin



## Summar and next steps

- One of the first times we have used this technology in a clinical trial
- The data generated is complex and we have more analysis we can do to try to tease apart even more understanding of skin inflammation.
- We would need to repeat this with a larger number of samples to generate a more robust data set with the ability to clearly link cell-cell interactions to response rates or groups of people.

Thank you to all everyone who participates in these studies and donates biopsies for research.

