

THE
2018 **LUSH**
PRIZE



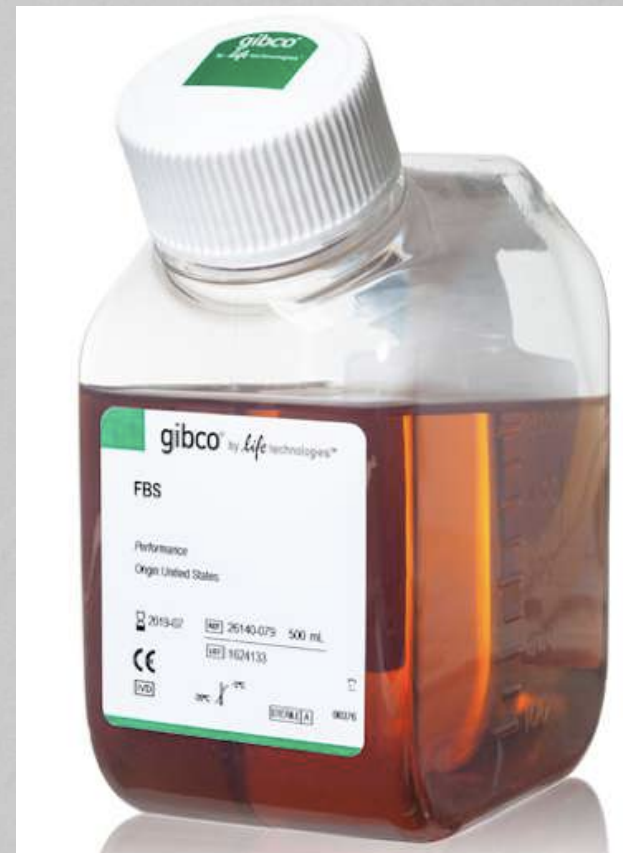
**SUPPORTING
ANIMAL-FREE
TESTING**

Adapting cells to a chemically-defined medium: a step towards making *in vitro* methods fully cruelty free

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Systematic review

The use of animal-derived products in alternative
in vitro methods for skin sensitization





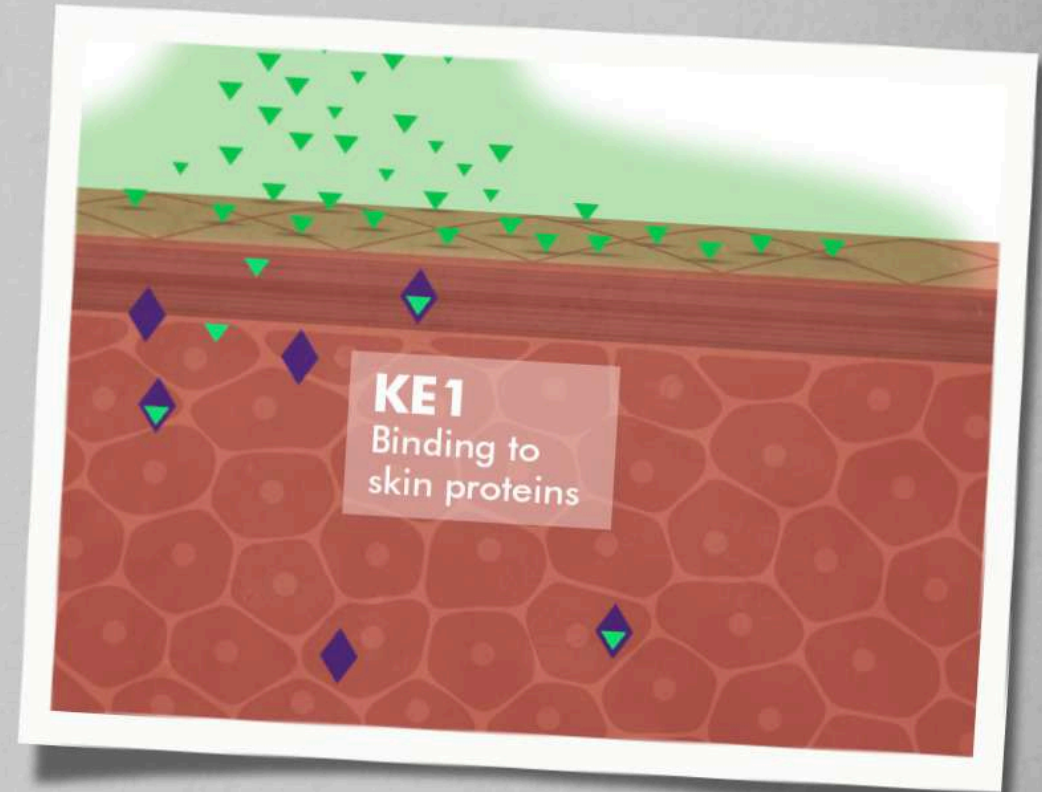
FBS ethical problems

- slaughter of pregnant cows
- blood harvested by cardiac puncture
- without anesthesia

1 to 2 million bovine fetuses each year

Technical-scientific problems

- not fully known composition
- batch-to-batch variation (inconsistency)
- risk of contamination (viruses, mycoplasmas, prions)
- **skin sensitization:** unknown influence in hapten-protein binding





GPMT and Buehler test



LLNAs (2 of the 3Rs)



Battery of the so-called
"full replacement" *in vitro* methods



Chemically defined media

Synthetic, free of animal-derived components



THE 2015 **LUSH**
PRIZE  **SUPPORTING
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**Cruelty-free hazard assessment:
replacing foetal bovine serum
in alternative methods**



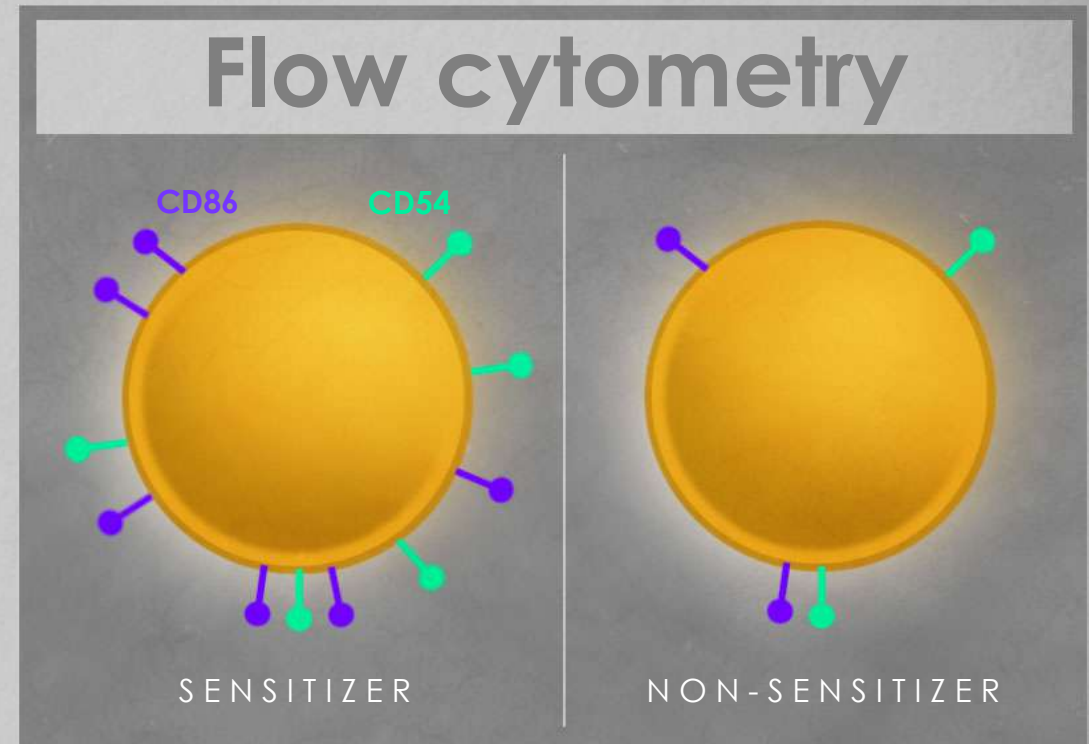
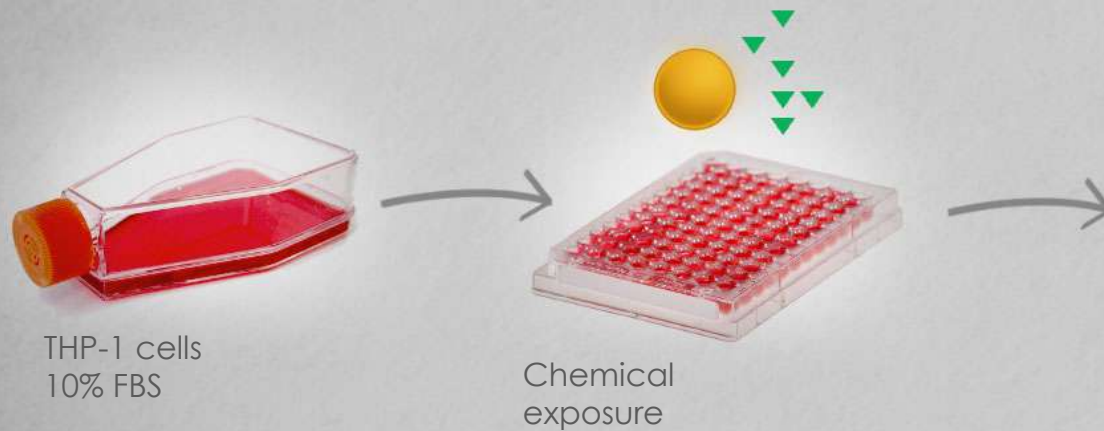
Human-Cell Line Activation Test (h-CLAT)

Ashikaga *et al.*

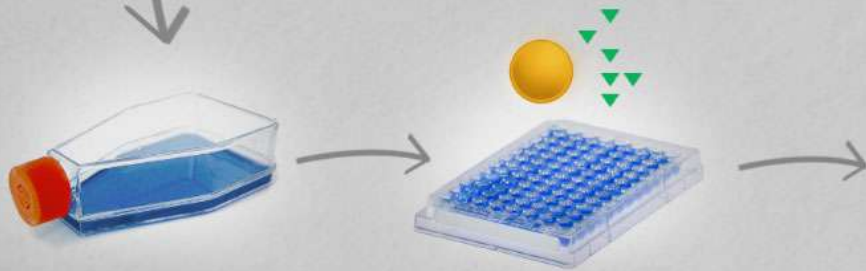
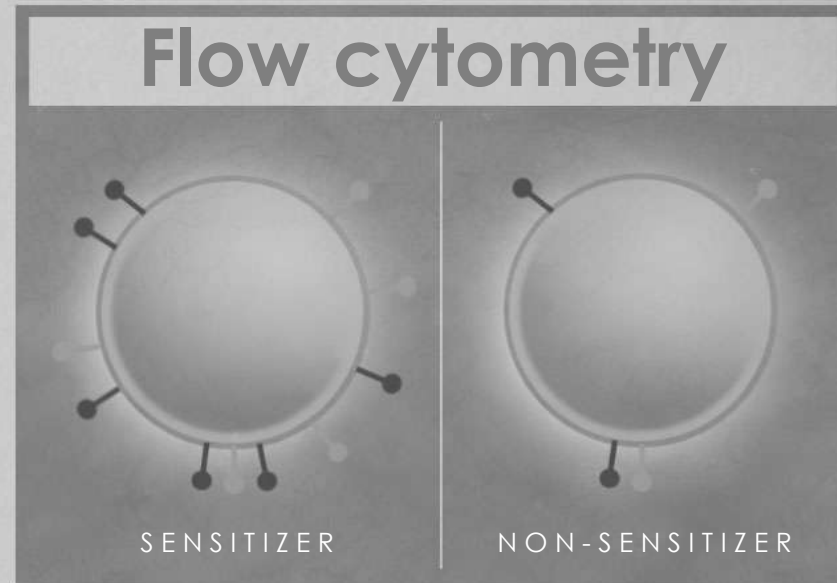
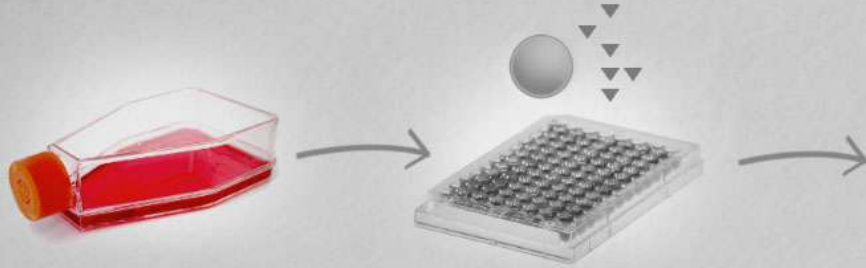


THE EUROPEAN UNION REFERENCE LABORATORY
FOR ALTERNATIVES TO ANIMAL TESTING

3KE skin sensitization AOP

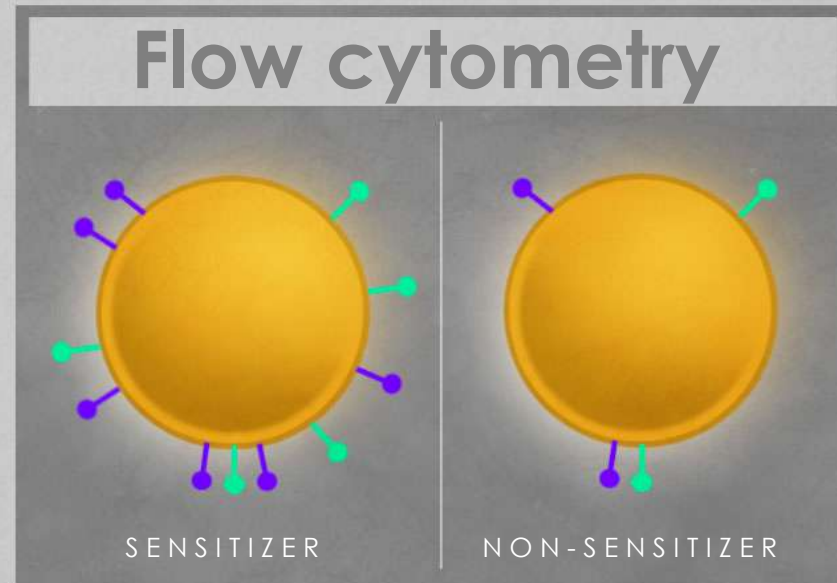


Adaptation
of THP-1 cells
to chemically
defined medium



Adapted
THP-1 cells
0% FBS

Chemical
exposure



Adaptation strategies:

- Direct
- Gradual

Media formulations:

- HL1
- X-VIVO
- SHL1
- DMEM/F12



THP-1 cells adapted to a chemically-defined medium show similar results to those cultured in medium containing FBS in the h-CLAT



100%
CRUELTY-
FREE

What's next?

To eliminate all animal-derived components from this and other *in vitro* methods and to develop alternative methods that are entirely free of animal use