Working Group 1

Aetilogy and Susceptibility

Hand eczema

Prevalence:

- Lifetime – 15-20%
- 12 months – 10%
- Point – 4%

Different morphologies



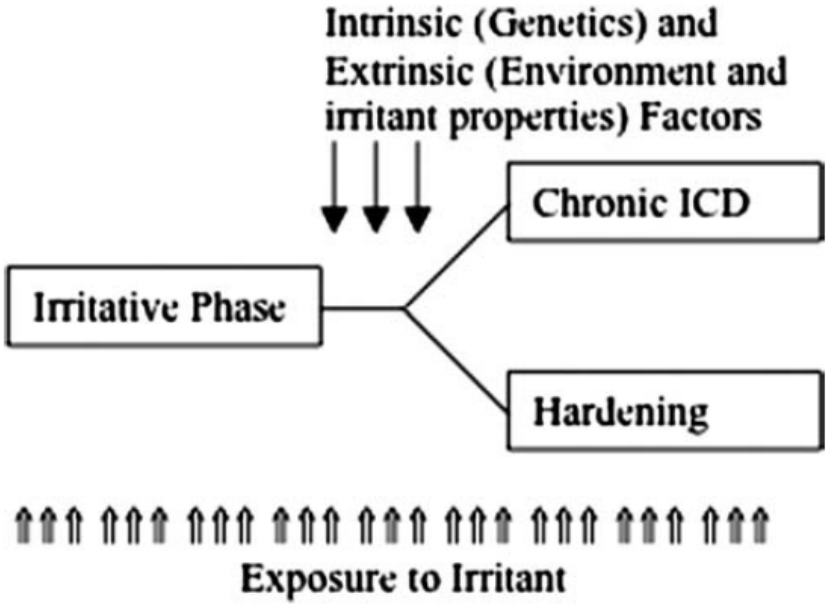
Genetic predisposition

Environmental exposure

Occupational Hand Eczema

Hardening phenomenon

The term ‘hardening effect’ or ‘accommodation’ has been defined as the adaptation of the skin to the cause of ICD.



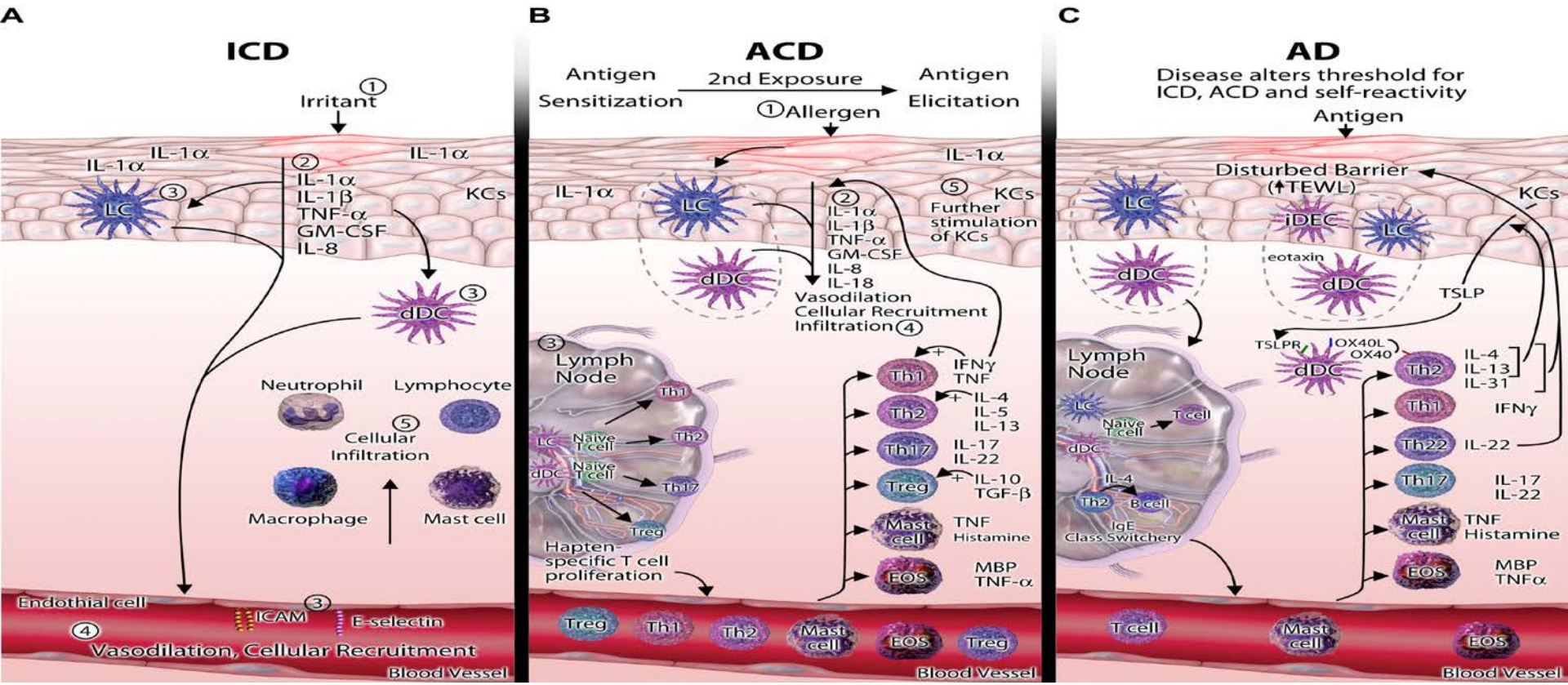
Risk factors for hand eczema

- Atopic dermatitis
- Heritage
- Filaggrin mutations
- Xerotic skin
- Previous hand eczema
- Exposure to irritants and allergens
- Female gender
- Young age
- Low socioeconomic group
- Tobacco smoking

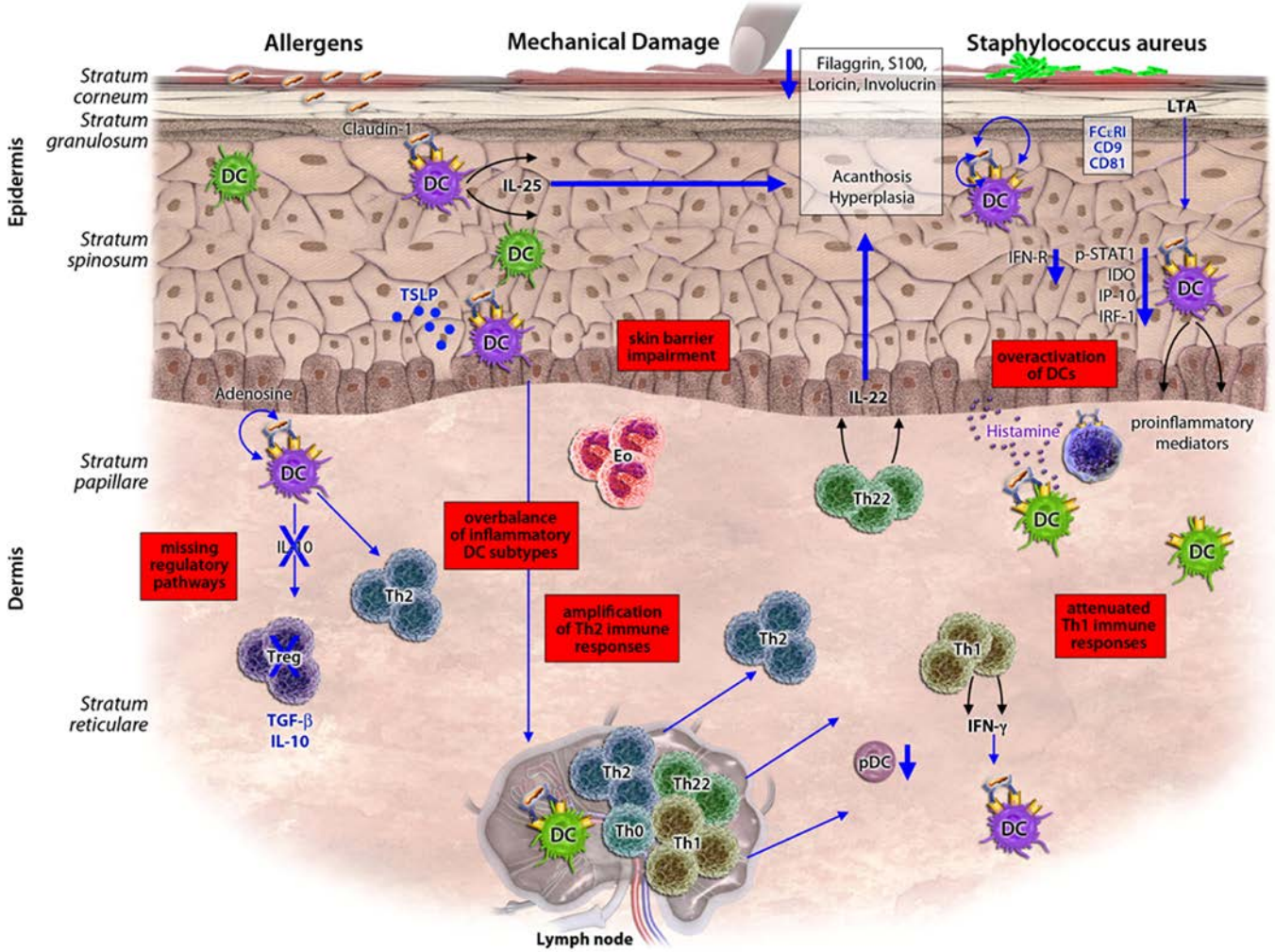
Factors affecting CS

- Skin barrier status
- Chemical properties
- Allergen potency
- Dose per area
- Number of applications
- Occlusion
- Presentation of irritants

Different subtypes of hand eczema



Barrier deficiency **vs** Immune activity



Exposures

- Irritants
- Allergens
- Proteins
- Microorganisms
- UV radiation
- Humidity
- Etc

ORIGINAL ARTICLE

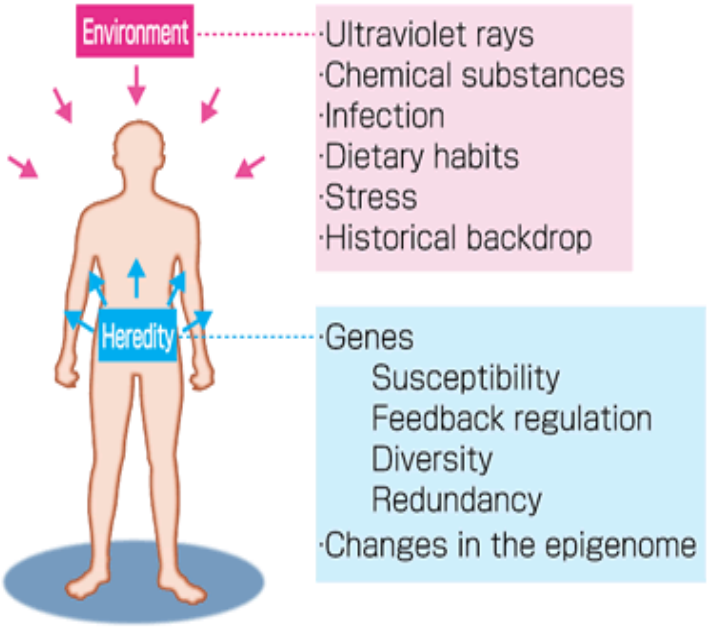
See related commentary on pg 1568

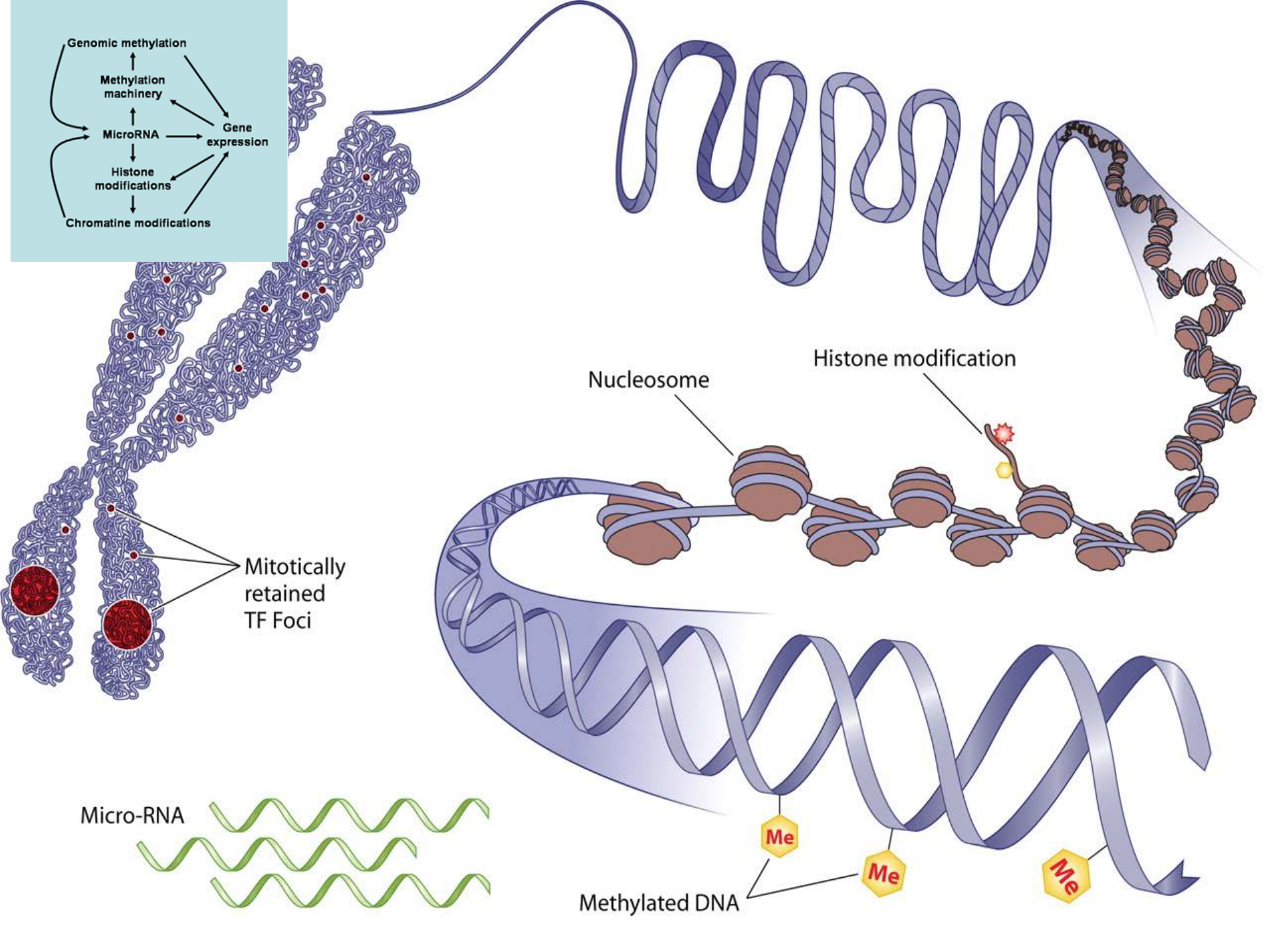
Heritability of Hand Eczema Is Not Explained by Comorbidity with Atopic Dermatitis

Anne Lerbaek[1,2], Kirsten O. Kyvik[3], Jakob Mortensen[3], Lars E. Bryld[2], Torkil Menné[1,2] and Tove Agner[2]

In **conclusion**, this study showed that genetic factors ***independent of atopic dermatitis*** are of moderate etiological importance for hand eczema and frequency of hand eczema eruptions.

Gene Environment Interaction




Genomic methylation
Methylation machinery
MicroRNA
Gene expression
Histone modifications
Chromatine modifications
Mitotically retained TF Foci
Nucleosome
Histone modification
Micro-RNA
Me
Me
Me
Methylated DNA

Possible questions

- **Identify genetic risk factors**
  - Strong phenotypes
  - Big cohorts
  - Candidate gene, GWAS, exome, epigenetics, micro-RNA
- **Environmental risk factors**
  - The burden of leisure exposures
- **Barrier vs Immune reactivity**
  - Filaggrin, Tight Junctions, Transglutaminases, etc
  - IL-1, IL-8, TNF-alfa, etc
  - Detoxitfication systems
- **Hardening phenomenon**
  - Genetics
  - Exposures