

Session Four

THE SKIN, A TARGET FOR TRACE ELEMENTS
– *CLINICAL APPLICATIONS*

Brigitte Dréno

3:55 pm – 4:15 pm
Saturday, Nov 5

Five trace elements (zinc, copper, bore, manganese, lithium) acts on skin physiology at different levels:

1- Synthesis of proteins

Zinc acts like cofactor for the metalloenzymes involved in many cellular processes and specifically in DNA synthesis.

2- Anti inflammatory activity

Zinc inhibits the production of IL-6 and TNF alpha by keratinocytes, inhibits the chemotactism of granulocytes and the expression of integrins as ICAM-. It is also able to modulate the expression of TLR.

Lithium inhibits the synthesis of arachidonic acid and the production of prostaglandins and leucotriens

3- Anti infectious mechanisms

Zinc is able to inhibit he proliferation of *p acnes* and lithium salts of *Malassezia furfur*.

4- Inhibition of free radicals

Zinc and manganese induce the expression of superoxyde dismutase by keratinocytes and fibroblasts.

Selenium induces the expression of Glutathion peroxydase and protects the keratinocytes of UV apoptosis.

5- Process of healing

Manganese, Zinc and Bore quicken the process of healing by increasing the expression of integrins $\alpha 3$, αV and $\beta 1$ and the migration of keratinocytes, modulating the production of métalloprotéases MMP- 9

6- Anti androgen activity

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NOVEMBER 5TH PLENARY SESSIONS

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dermatology
U P D A T E

Zinc and Cupper inhibits the expression of 5 alpha reductase expressed by sebaceous gland and Keratinocytes These different targets of activity in skin explain the main different cutaneous affections where these trace elements are proposed and used in different clinical studies: inflammatory acne, Acne Inversa, Seborrheic dermatitis, prevention of skin cancer, healing of clefts.