Innovative two-chamber skin explant model to study skin diseases in marine fish

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Organisation

Name of the organisation
Instituut voor Landbouw-, Visserij- en Voedingsonderzoek (ILVO)
Department Animal Research
Country Belgium
Geographical Area Flemish Region
Name of the organisation Ghent University (UGent)
Department Faculty of Veterinary Medicine
Country Belgium
Geographical Area Flemish Region

SCOPE OF THE METHOD

The Method relates to	Animal health
The Method is situated in	Basic Research
Type of method	In vitro - Ex vivo
Species from which cells/tissues/organs are derived	Limanda limanda
Type of cells/tissues/organs	skin

DESCRIPTION

Method keywords

in vitro
Skin tissue

Scientific area keywords

Fish disease
Fisheries impact

Method description

Maaike Vercauteren developed the innovative *in vitro* 'two-chamber skin explant model'. Pieces of skin are kept and examined in a controlled laboratory environment. This is no sinecure, because the skin must continue to function as if it were still attached to the fish. However, the tested setup proved successful: after one day in the model, the skin did not show any major differences with a control skin. Minimal differences were observed in the tissue structure of the skin, the number of cell layers, and a number of specific cell types

(e.g. mucosal cells). There were no unwanted growing or dying skin cells; only the epidermis appeared to thicken (to a limited extent). The developed model is seen as a comprehensive and valuable *in vitro* alternative for experiments with live fish, and offers opportunities for further, in-depth research into the causes of skin ulcers.

Method status

Internally validated

REFERENCES, ASSOCIATED DOCUMENTS AND OTHER INFORMATION

References

Vercauteren M., Devriese L., Decostere A., Chiers K. (2019). An innovative two-chamber skin explant model to study skin diseases in marine fish. 19th international conference on diseases of fish and shellfish, 2019, Porto, Portugal.
Vercauteren M., Devriese L., Decostere A., Chiers K. (2019). The two-chamber skin explant model: a promising tool to study skin diseases in marine fish. Fish welfare mini-symposium, 2019, Ostend, Belgium (poster)
Vercauteren, M.; De Swaef, E.; Devriese, L.I.; Polet, H.; Decostere, A; Chiers, K. (2018). Development of an innovative two-chamber skin explant model for marine fish, in: Mees, J. et al. (Ed.) Book of abstracts – VLIZ Marine Scientist Day. Bredene, Belgium, 21 March 2018. VLIZ Special Publication, 80: pp. 30

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