

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

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## SCOPE OF THE METHOD

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

## DESCRIPTION

### Method keywords

in vitro

Skin tissue

## **Scientific area keywords**

Fish disease

Fisheries impact

## **Method description**

Maike 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.

## **Lab equipment**

## **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

## Associated documents

## PARTNERS AND COLLABORATIONS

### Organisation

**Name of the organisation** Instituut voor Landbouw-, Visserij- en Voedingsonderzoek (ILVO)

**Department** Animal Research

**Country** Belgium

**Geographical Area** Flemish Region

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