HypoSkin®
User manual

Live & standardized human skin models

GENOSKIN

Standardized & ready-to-use
human skin models
to predict clinical response.

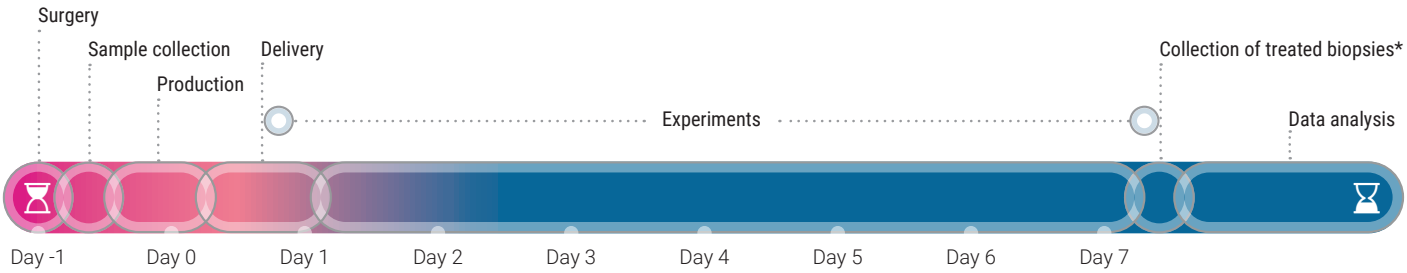
Product description

Using human skin to better predict response to treatment

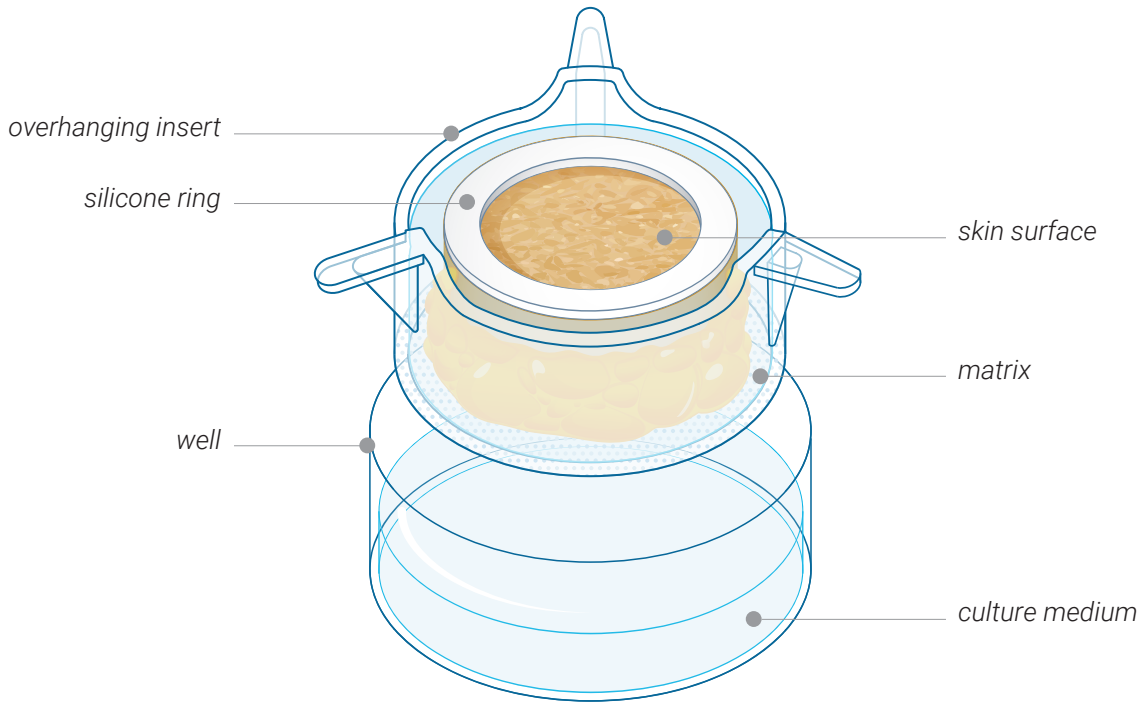
Genoskin works in close collaboration with hospitals and clinics in France and in the United States to efficiently collect human skin samples from healthy donors, immediately after plastic surgery. Our unique, patented and standardized technology maintains donated human skin biopsies alive for up to seven days to enable efficacy and safety testing of your compounds and therapeutics on real, live human skin.
Skin samples are obtained with the donors' informed consent and are in full compliance with the Declaration of Helsinki and all other applicable regulations. For each skin sample collected, the serum of the donor is tested for the absence of HIV-1 and -2, and Hepatitis B and C. Genoskin is ISO 9001:2015 certified.

Typical workflow

Genoskin collects the samples required for production immediately following surgery.
All the samples needed are stored at room temperature until the start of production (less than 24 hours after surgery).
As soon as production is completed, Genoskin kits are shipped to the customer. Deliveries of orders typically take place every Wednesday through Friday on a weekly basis.

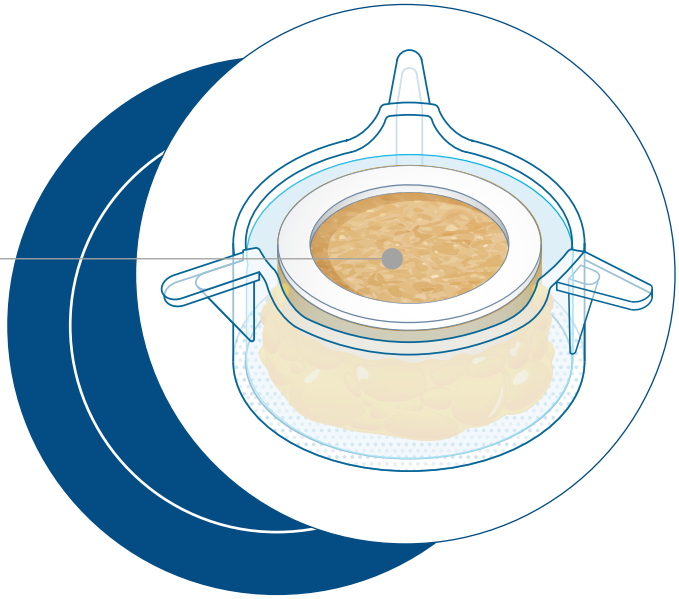


** Biopsies might be collected at any time point within the 7 days of culture depending on your experimental needs.*



HypoSkin®
Live & injectable human skin models

human skin biopsy
with epidermis, dermis & hypodermis



Real live human skin

HypoSkin® models contain human skin biopsies embedded in a nourishing gel-like matrix which keeps the skin alive and functional for up to 7 days.

Normal subcutaneous tissue architecture

The culture insert contains a skin biopsy with the three human skin layers, i.e. epidermis, dermis and hypodermis with normal fat tissue architecture and tissue thickness enabling subcutaneous injection of compounds.

Ready. Easy. Standardized.

HypoSkin® is designed as a ready-to-use kit to simplify testing procedures.
The models allow for fast, reliable studies and assays with reproducible results.
Injection volumes have been validated for each skin biopsy format.

Adapted to your needs

HypoSkin® comes in a range of formats varying in biopsy diameter to assess skin response to subcutaneous and intradermal injection or transdermal application.

HypoSkin®

Ready-to-use human skin model with hypodermis, silicone ring & dedicated culture medium.

		INTRADERMAL INJECTION	SUBCUTANEOUS INJECTION	TOPICAL ADMINISTRATION			
REFERENCE	DESCRIPTION	RECOMMENDED INJECTION VOLUME	RECOMMENDED INJECTION VOLUME	WORKING SURFACE	RECOMMENDED TOPICAL VOLUME	*EX VIVO* CULTURE DURATION	VOLUME OF MEDIUM/DAY
HPS002	HypoSkin M Ø 15 mm	35 µL	40 µL	1.13 cm^2	25-45 µL	7 days	2 mL
HPS003	HypoSkin L Ø 20 mm	55 µL	100 µL	1.76 cm^2	50-70 µL	7 days	2 mL
HPS004	HypoSkin XL Ø 23 mm	100 µL	125 µL	2.54 cm^2	100-200 µL	5 days	3 mL

Get started

Kit content

Always inspect the kit for its entirety and potential transportation damages immediately upon receipt.

Every kit contains:

- The specified quantity of models embedded in individual inserts in a 6-well cell culture plate. The inserts are loaded in a transport plate covered by a lid. Every skin biopsy is firmly maintained in our proprietary matrix within the insert.
- The required volume of culture medium to maintain the biopsies alive. The culture medium should be stored at 4°C.
- A QA/QC lot release certificate with donor information (age, gender, skin type).

Should you encounter any abnormalities upon receipt of the items, please call us or send an email to: contact@genoskin.com.

Other materials required*

For the culture and systemic administration:

- Class II biological safety cabinet
- Incubator (37 °C, 5 % CO_2, 95 % humidity)
- Micro-Pipettor (sterile)
- Pipette tips (sterile)

For topical administration:

- Pair of forceps (sterile)
- Positive displacement pipette for semisolid materials
- Mortar with pestle for solid materials
- Sharp spoon for solid materials
- Pipette and pipette tips (sterile) for liquid solutions

For subcutaneous & intradermal injections:

- Recommended syringes and needles: 0.3 mL insulin syringe with 6 to 8 mm needle, 30G (Dominique Dutscher, 324826 or BD Biosciences, 328449).
- Pair of forceps (sterile)

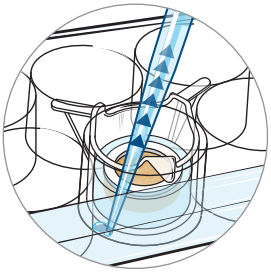
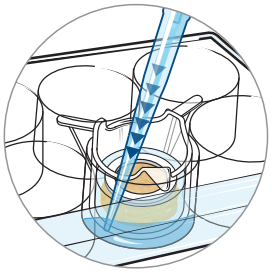
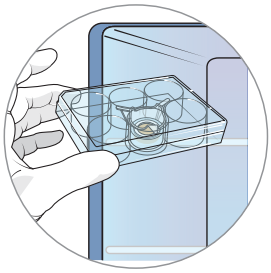
** Not provided by Genoskin.*

Preparation on receipt

Before handling the skin biopsies, please follow the instructions below:

1. Under sterile conditions, remove the plastic film from the HypoSkin® transport plate and open the culture dish.
2. Use a pipette to add the required volume of culture medium (warmed to room temparature) to each well according to the volume indicated in the table on page 5 of this manual. Check that no bubbles have formed beneath the porous membrane of the insert.
3. Incubate the culture dish for at least 1 hour at 37 °C, 5 % CO_2, and 95 % relative humidity before performing the first experiment. If incubating overnight, change the culture medium before administering your compound, product, or formula.
4. Follow the procedure according to your needs on pages 7 & 8.
5. Incubate the skin models in an incubator (37 °C, 5 % CO_2, 95 % humidity) for up to 7 days and change the culture medium every day (please check the delivery note for the exact expiration date).
6. Change the culture medium daily, by aspirating the medium and replacing it by new culture medium (at room temperature) for each well. Ensure there are no bubbles beneath the porous membrane of the insert when changing the culture medium.

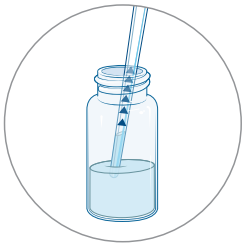
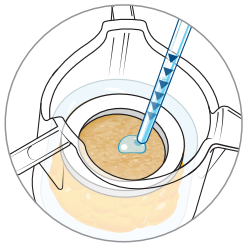
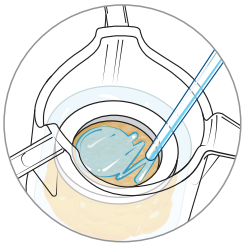
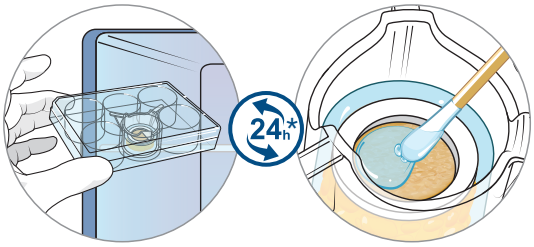
How to incubate

Skin models can be cultivated for up to 7 days. (Please check the delivery note for the exact expiration date).

How to administer your compound

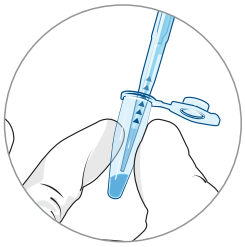
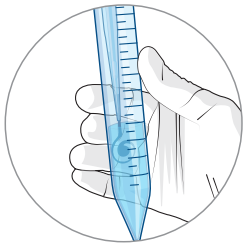
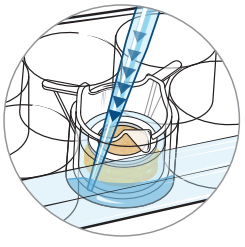
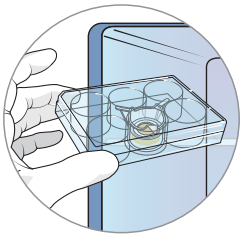
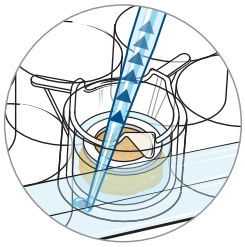
A Topical administration

1. Collect the desired volume of compound.
2. Apply it directly on the skin surface.
3. Spread the formulation homogeneously with the tip.
4. Put the plate in the CO_2 incubator at 37°C.
5. After incubation remove any excess compound.

** Time is dependent on the experiment.*

B Systemic-like administration

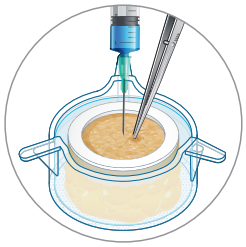






1. Collect the desired volume of compound.
2. Dilute your compound in the required volume of medium at room temperature.
3. Dispense the solution into the well.
4. Incubate the plate in the CO_2 incubator at 37°C for the desired amount of time.
5. After incubation remove the medium.

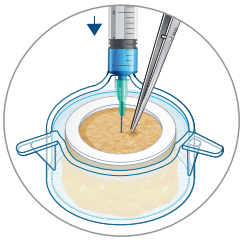
How to administer your compound

C Subcutaneous injections

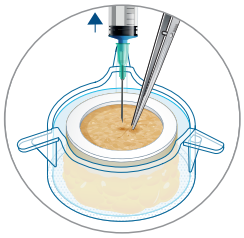
1. Collect the desired volume of compound using a sterile syringe.



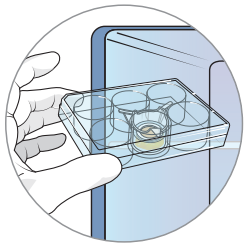
2. Pinch the skin surface with forceps and insert the needle vertically and completely into the skin to guarantee a bolus of injection in the subcutaneous layer.



3. Slowly inject the solution into the skin biopsy.



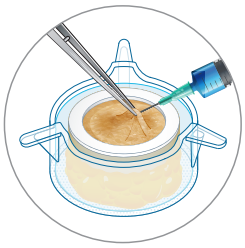
4. Slowly withdraw the needle from the skin biopsy while maintaining its surface with forceps.



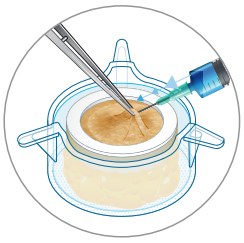
5. Put the plate in the CO_2 incubator at 37°C.

D Intra-dermal injections

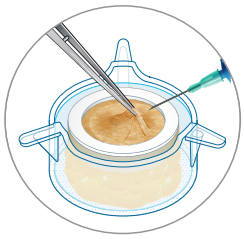
1. Collect the desired volume of compound using a sterile syringe.



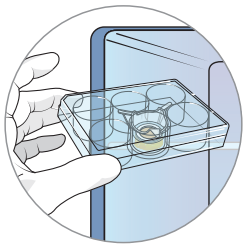
2. Insert the needle **as horizontally as possible** into the skin while pinching the skin surface with forceps, **to guarantee a bolus of injection in the dermis**.



3. Slowly inject the solution into the skin biopsy.



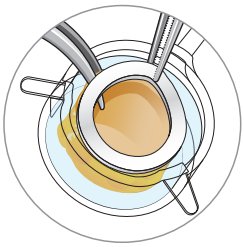
4. Slowly withdraw the needle from the skin biopsy while maintaining its surface with forceps.



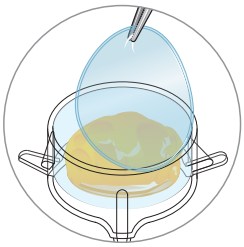
5. Put the plate in the CO_2 incubator at 37°C.

We recommend not to include the part of the skin that is covered by the silicone ring in your analysis.

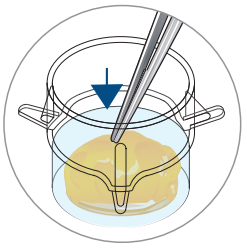
How to collect HypoSkin®



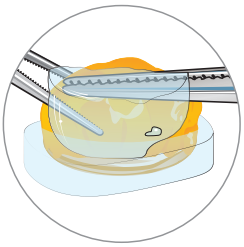
1 Detach the silicone ring from the skin biopsy while holding the skin surface with forceps.



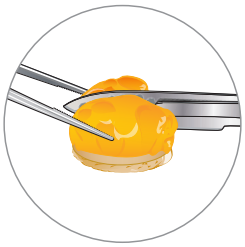
2 Gently cut the porous membrane of the insert, using a scalpel blade, and pull it with forceps.



3 Push the skin biopsy with forceps to remove it from the cell culture insert.



4 Place the skin biopsy hypodermis upward and gently detach the transparent jellified matrix using forceps.



5 Use forceps to grip the skin biopsy and cut the skin tissue in two parts using a scalpel. Process the two samples as required, e.g. one part in formalin and the other one snap frozen.

Disclaimer

HypoSkin® requires precise and skilled injection techniques due to its complex nature, directly impacting experimental outcomes. We offer specialized, paid training programs to master these techniques and provide comprehensive support and collaboration to ensure optimal use of our model in your research.
For further information or to enroll in our training program, please contact us.

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