

AN INTRADERMAL METHOD FOR THE TREATMENT OF HAIR LOSS AND ALOPECIA

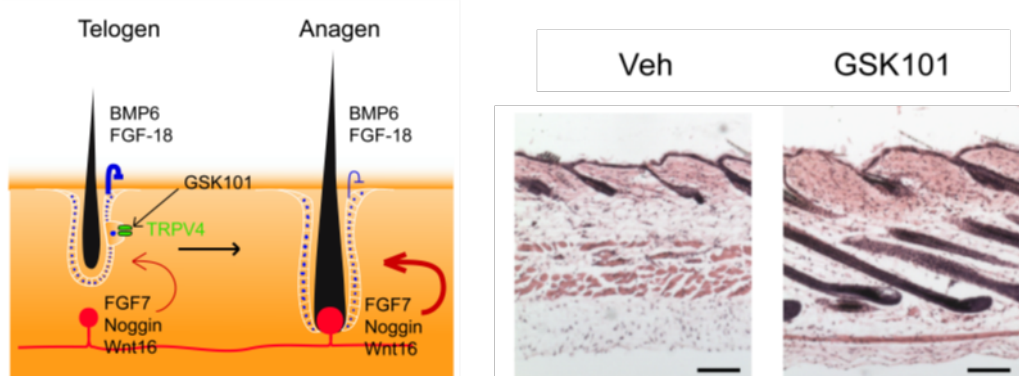
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Technology Description:

A team of researchers, led by Hongzhen Hu, at Washington University in St. Louis has developed a method of treating hair loss and alopecia by intradermal injection targeting TRPV4 activation. Using a small molecule TRPV4 agonist, a single intradermal injection is sufficient to induce hair follicle regeneration and new hair growth.



TRPV4 activation promotes telogen to anagen transition and subsequent hair growth

Stem cells in the hair follicle normally progress through periods of growth (anagen) and quiescence (telogen), but the activation of those stem cells can drive new hair growth. TRPV4 activation drives this transition into anagen by promoting downstream ERK signaling.

Furthermore, this technology avoids the adverse effects seen with systemic TRPV4 activation, because TRPV4 agonists can stimulate hair growth through intradermal injection.

Stage of Research:

Inventors administered a known TRPV4 agonist (GSK1016790A) via single intradermal injection in healthy mice to study the effect on normal cycles of follicle growth. The team has confirmed that TRPV4 activation induces downstream ERK signaling to promote hair follicle regeneration *in vivo*.

Publications: Yang, P., Lu, P., Luo, J., Du, L., Feng, J., Cai, T., Yuan, Y., Cheng, H., & Hu, H. (2020). [Transient stimulation of TRPV4-expressing keratinocytes promotes hair follicle regeneration in mice](#). *British Journal of Pharmacology*.

Application: Therapeutic for alopecia/hair loss

Key Advantages:

- **Single treatment can provide 6-fold increase in hair follicle length**
- **Reduced risk of adverse effects** (seen with systemic TRPV4 agonists) **due to intradermal injection**

- Compound could be reformulated for topical delivery

Patents: Application filed

Related Web Links: [Hu Profile](#), [Hu Lab](#)