

# Investigating the effect of a test compound on hair growth and anagen-catagen conversion

## Case study: Cyclosporin maintains hair follicles longer in anagen *ex vivo*

### Hair experts

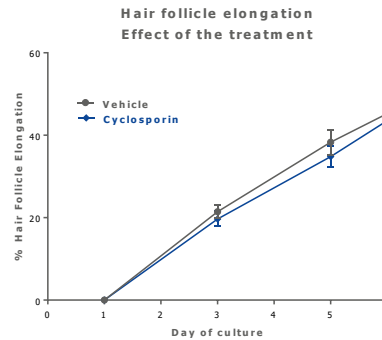
working with us: Amos Gilhar, Désmond J. Tobin, Gill Westgate, Francisco Jimenez, Marta Bertolini, Mike P. Philpott, Natasha Botchkareva, Ralf Paus,...

Our **method**: Human healthy microdissected amputated hair follicle *ex vivo* organ culture

### Cyclosporin:

is an immunosuppressant drug which induces unwanted hair growth as side effect *in vivo* and prolongs anagen *ex vivo* (Hawkshaw et al., PLoS Biol 2018)

## 1. Cyclosporin maintains the normal rate of hair elongation (hair shaft production)



Pooled data from 3 independent experiments, Mean±SEM, n=21-22 HF's analysed/group from 3 donors

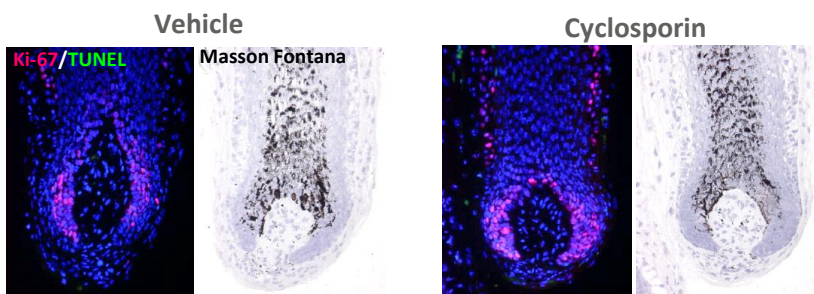


Amputated microdissected hair follicle at day 0, after isolation



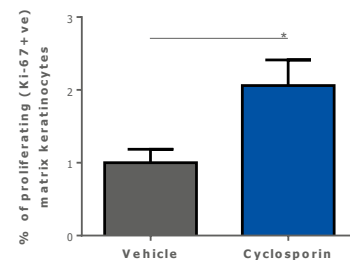
Amputated microdissected hair follicle at day 6 of organ culture: Note the newly formed hair shaft and outer root sheath

## 2. Cyclosporin significantly increases cell proliferation in the hair follicle matrix



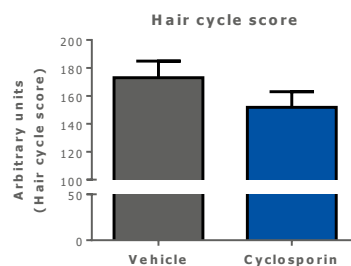
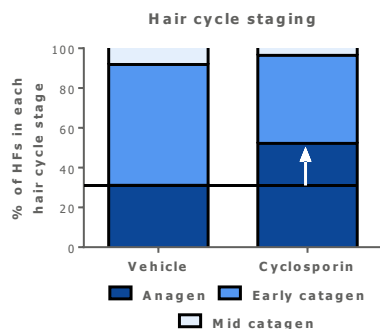
**Ki-67:** marker for proliferation. **TUNEL:** marker for apoptosis.  
**Masson Fontana:** histochemical staining revealing melanin content

% of proliferative hair matrix keratinocytes



Pooled data from 3 independent experiments. Mean±SEM n=26-28HF's analysed/group from 3 donors. \*p<0.05.

## 3. Cyclosporin maintains hair follicles longer in anagen



Pooled data from 3 independent experiments. Mean or Mean±SEM n=26-28HF's analysed/group from 3 different donors.

### Our selected publications on the method:

Langan et al., Exp Dermatol 2015;  
Kloepper et al., Exp Dermatol 2010

### Our selected publications on the topic:

Lisztes E et al, J. Invest Dermatol, 2019, Chéret et al., Nat Commun 2018; Alam et al., Br J Dermatol 2018; Parodi et al, PLoS Biol. 2018

**Read-outs:** Hair Follicle Growth, Hair Shaft Production, Anagen (Growth Phase) Maintenance, Catagen (Regression Phase) induction, Proliferation and Apoptosis of Hair Matrix Keratinocytes, etc.

## Contact us for a customized study:

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