

preventing melanoma development by manipulating pigment levels

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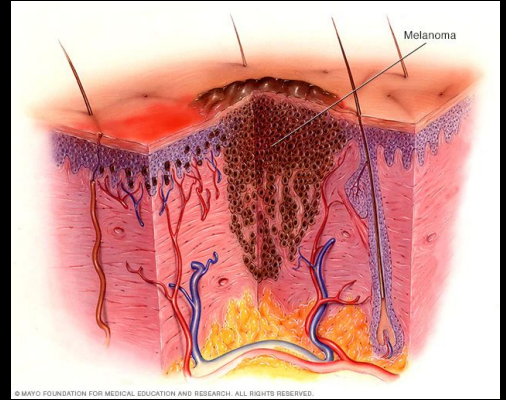
1.

background

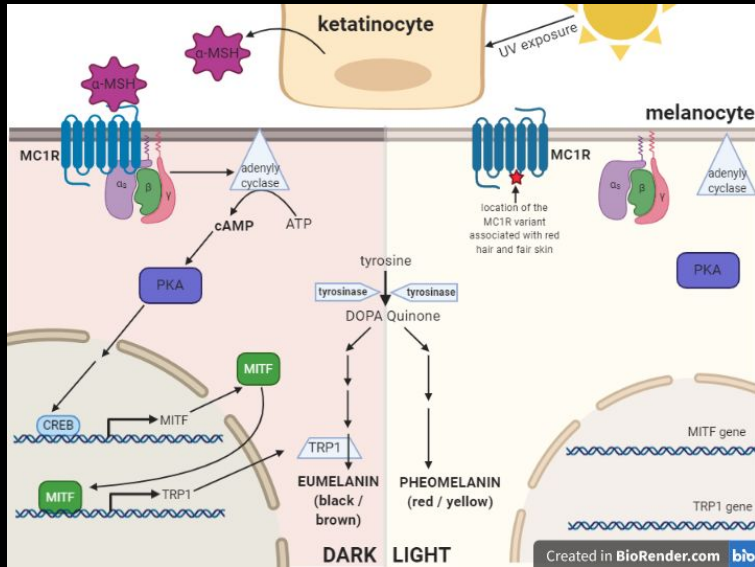
what is melanoma?

melanoma

- 75,000 people diagnosed, 9710 deaths per year in US
- melanocytes: pigment-producing skin cells
 - synthesize two main pigments
 - eumelanin: dark-brown
 - pheomelanin: orange-red



Mayo Clinic



Chegg

development

- UV-dependent + **UV-independent** pathways
- pheomelanin synthesis pathway toxic
- eumelanin protects/lowers risk
- eumelanin can decrease pheomelanin toxicity
- exact mechanism/ratio unclear

2.

question + hypothesis

what do we want to know?

how does the **ratio** of
eumelanin to
pheomelanin affect
melanoma
development?

hypothesis

increase eumelanin:pheomelanin ratio to **decrease** melanoma risk/development

3.

experimental approach

how will we test this?

the model

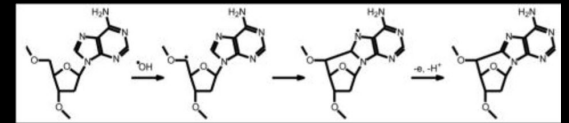
- BRAF V600E mice models
- BRAF mutated in 30% of melanoma patients
- inactivating mutation in MC1R gene

testing ratios

- using MCTR -/- mice:
 - inject at different concentrations into bloodstream
- using MCTR +/- mice:
 - introduce MCTR repressors

measuring development

- liquid chromatography-tandem mass spectrometry
 - levels of ROS-mediated cyclopurines
 - 8,5'-cyclo-2'-deoxyadenosine
 - 8,5'-cyclo-2'-deoxyguanosine
- size + histology of tumor growths



Mitra et. al

final thoughts

- similar findings regardless of mechanism
- elucidation key for future prevention
- possibly influence research in other cancers
- thank you Julia, Rachelle, Dan, Sien, Monique, Dr. Fisher!

references

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thank you!



questions?