



# HYPERPIGMENTATION: LIGHT-REGULATED DRUGS AS NOVEL DEPIGMENTING TREATMENT FOR HUMAN USE



## CHALLENGE

Humans are subject to an intense induction of pigmentation in the skin due to the activation of melanogenesis by the ultraviolet (UV) light of the sun. Sometimes this process takes the form of dark patches (lentigo), a condition known as hyperpigmentation, which can occur in the youth or the elderly and it is a benign process.

The effective treatment of hyperpigmentation is a difficult challenge for dermatologists and patients.



## MARKET

The global hyperpigmentation treatment market is expected to reach USD 732.1 million by 2028 driven by new treatment options and technologies. Major treatment types in the market are topical medication, laser therapy, chemical peels, phototherapy, and microdermabrasion.

Our compounds also address the skin whitening market, cosmetic products or services that reduce the amount of melanin, or pigment, in the skin to make it appear lighter. The global skin whitening market is forecast to grow to USD 11.8 billion by 2026. Skin whitening products are available in numerous forms such as soaps, lotions, creams, and pills.



## ASSET

Dr Pau Gorostiza and his team have developed technologies for photo-switchable small molecules and peptides, using light to activate compounds that inhibit melanogenesis so that its depigmenting action is enhanced when exposed to UV light. This approach appears to be an appropriate strategy to address one of the challenges in the treatment of hyperpigmentation, rather than slowing down natural sun-induced melanogenesis and hyperpigmentation. The new product will use sunlight to induce depigmentation.

### Team

Pau Gorostiza - Scientific Leader  
Asli Raman - Tech Transfer Manager  
Eduardo Salas - Head of Tech Transfer

### Stage of Development

- Drug design and synthesis completed.
- In vitro characterisation completed (small molecules and peptides).
- In vivo safety and efficacy studies in pigmented zebrafish completed with positive results (small molecule).
- Market-ready within 12 months.

### Exploitation Plan

Licensing

### Intellectual Property Status

IP strategy under development.

### Regulatory Path

OTC

## ASSET VALUE

The proposed compounds would be the first targeted phototherapy to be marketed for cosmetic applications.

The Institute for Bioengineering of Catalonia (IBEC) is a research centre of excellence established to carry out interdisciplinary research at the forefront of knowledge in the bioengineering field. Dr Pau Gorostiza, Group Leader at IBEC, has a longstanding experience in photopharmacology for basic research purposes and as a treatment for various pathologies or conditions. His team is in regular contact with industry experts to discuss the progress of this project.

## USES

- Lentigo.
- Hyperpigmentation.