

dysfunctional cytogenesis — the transgenic animal model GFAP-tk — further showed that these cells induced reversion of anxiety-like traits affected by cytogenesis ablation. Transplanted GRPs were able to survive, proliferate and differentiate within the hippocampus, accompanied by enhanced cell proliferation. These results highlight GRPs as a promising therapeutic approach for specific behavioural domains known to be affected by mood disorders, such as depression. Although we have explored the role of GRPs in animal models, the incorporation of one additional translation step might allow the use of data and information generated in non-animal models, as inputs to risk assessment. We aim to use these cells *in vitro* and derive them from iPSCs to explore their mechanisms and translate the data to the clinic, overcoming the ethical problems related to the use of animal models.

Development of Self-disinfecting Paints and *In Vitro* Assessment of their Cytotoxicity on Human Cells

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Healthcare-associated infections remain a severe problem across the world. The high number of hospital-acquired infections is related not only to person-to-person transmission of pathogens but also to contact with contaminated surfaces. Traditional cleaning and disinfection processes are proving insufficient in this respect, so new methods are being developed to prevent the propagation of microorganisms. Self-disinfecting surfaces are a good example. This PhD project aims to develop, test and validate a self-disinfecting paint, to be applied in areas with a high propensity for infection spreading, such as healthcare facilities, schools or other public spaces, to help reduce infection risks. To do so, triclosan and isoborneol, substances with proven antimicrobial properties, were incorporated at different concentrations in a conventional paint to achieve an effective formula, conjugating good antimicrobial activity with safety of use and handling. The paint's antibacterial efficacy was evaluated according to international standards ISO 22196 and JIS Z 280, against bacteria well-known for being associated with hospital-acquired infections, such as *Staphylococcus aureus*, *Escherichia coli* and *Klebsiella* spp.^{1,2} To guarantee the paint's safety for commercial use, its cytotoxicity is being evaluated for the most probable routes of exposure: skin contact with HaCaT cells (human keratinocytes); and inhalation with pulmonary cells A549 (human alveolar epithelial cells). Following ISO 10993, direct contact and extract-based tests were performed.³ Potential genotoxicity will be evaluated with the comet assay and micronucleus assays in the same cell models.

References

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Development of a New *In Vitro* Device for Risk Assessment of Inhaled Xenobiotics: Lung/Liver

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Atmospheric pollution has proven to have adverse effects on human health.¹ European regulatory acceptance of the Three Rs testing approaches challenge scientific investigations. To meet these guidelines, the development and use of novel *in*