

10 YEARS OF
BREAKTHROUGHS
A HEALTHIER
FUTURE



HUMAN iPSC-DERIVED CELLS: A POWERFUL TOOL FOR NEUROPATHIC PAIN DISEASE MODELLING

Rutigliano L, Kuhn C, Ricci F, Nitzsche A, Haupt S, Faedo A, Tarroni P, Montag K, Cainarca S, Scarabottolo L

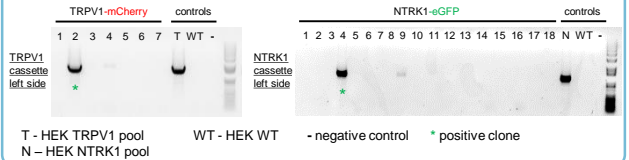
Facts & Figures

Start date	1 April 2017
End date	31 March 2020
Contributions	1,500,000.00
IMI funding	1,500,000.00
EFPIA in kind	1,550,000.00
Total Cost	3,050,000.00
Project website	ngn-pet.com

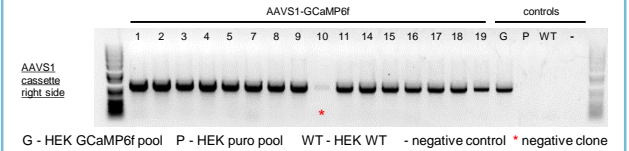
Results

Screening of iPSC clones by genomic PCR

TRPV1-mCherry and NTRK1-eGFP iPSC clones

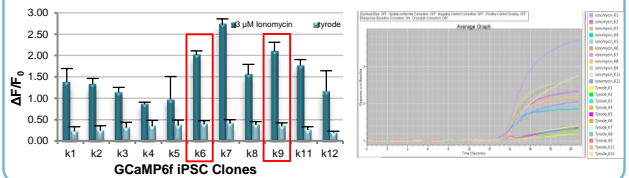


GCaMP6f iPSC clones

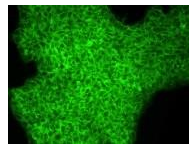


Characterisation of positive clones

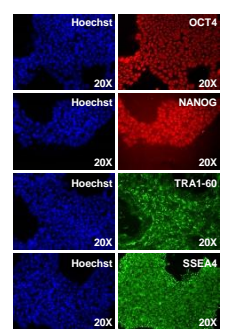
Intracellular Ca²⁺ measurement by FLIPRTETRA on GCaMP6f iPSC clones



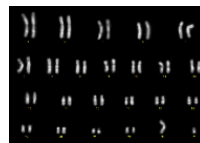
ELF97 Phosphatase detection



Immunofluorescence



Karyotype by Q-banding



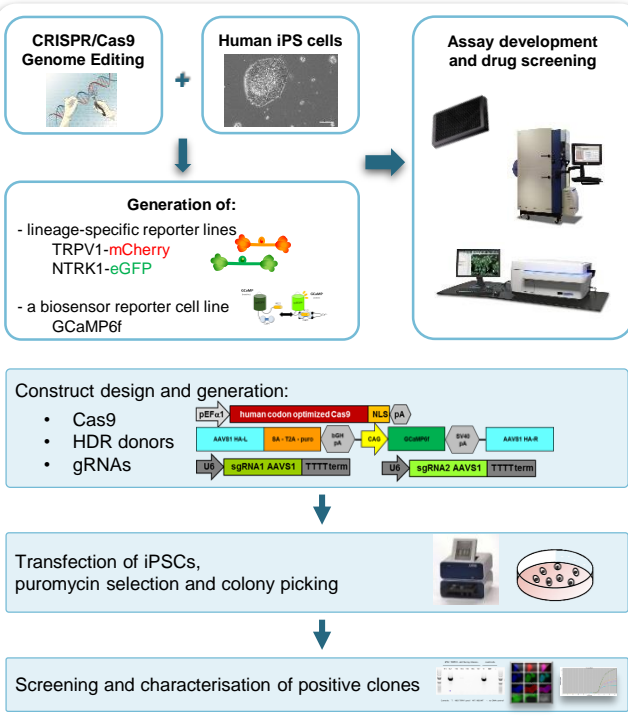
Representative characterisation of GCaMP6f K6 clone

Challenge

Chronic neuropathic pain (NP) is a condition with highly unmet medical need. Human induced pluripotent stem cell (hiPSC) technology is emerging as a potent tool to understand the pathophysiology of NP and to develop new therapies.



Approach & Methodology



Value of IMI collaboration

Two SMEs (Axxam and Life&Brain) with consolidated expertise in the fields of iPSCs and screening systems, in partnership with academia (KCL, NMI) and pharmaceutical companies (Esteve, Grünenthal) are contributing their knowhow and infrastructure to setting up *in vitro* models for pain research and drug discovery.

Impact & take home message

The generation of reporter iPSC lines will be helpful for understanding the NP-relevant pathways, for establishing a human *in vitro* high content/high throughput screening assay platform and for identifying novel therapeutic molecules for NP.



innovative medicines initiative



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