Humanising Drug Discovery

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Pfizer Neusentis
Neusentis

- Pfizer’s only EU R&D unit
- Based at Granta Park since 2011 (RegMed 2008)
  - Also Raleigh NC
- Merger of Regenerative Medicine and Pain RUs.
- Disease focus of pain and sensory disorders.
  - Expertise in ion channels

- Of most use when access to human tissue is difficult (e.g. neuronal disorders).
- Or where there is a strong genetic component (e.g. rare diseases).
- Our interest is in the intersection of these:
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- Disease due to a single disease-causing mutation.

Use gene targeting to repair disease-causing mutation.

Screening for therapeutic compounds.

Disease-specific drugs.

Transplantation of genetically matched healthy cells.

Particle-specific iPS cells.

Skin biopsy.

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iPSC Genetic Stability

aCGH, SNP chips and WGS

iPSC Epigenetic Memory

Chromatin ChIP-Seq, and DNA bisulphite-Seq

Stem Cell Banks

Bank should standardise:
- QC: Genetic, epigenetic, ...
- Metadata: Clinical phenotyping, genetics
- Legal & ethical

Patient Cohort
Patient Cohort
Patient Cohort
Patient Cohort
Patient Cohort
Normal Controls

iPSC Derivation Centre
iPSC Derivation Centre
iPSC Derivation Centre

Pharma
Biotech
Pharma
Academic
EBiSC

26 partners (pharma, academia and biotech)
- Including EBI, Pfizer and WTSI.
€35M budget over 3 years – kicked off Jan 2014.

To build a physical iPSC bank (based in Babraham), but also a database of iPSCs:
- Standardised metadata a key piece of added value.

http://www.ebisc.org
Curation
Integration
Visualisation