Bio-AlteR® 3D Cell Culture:

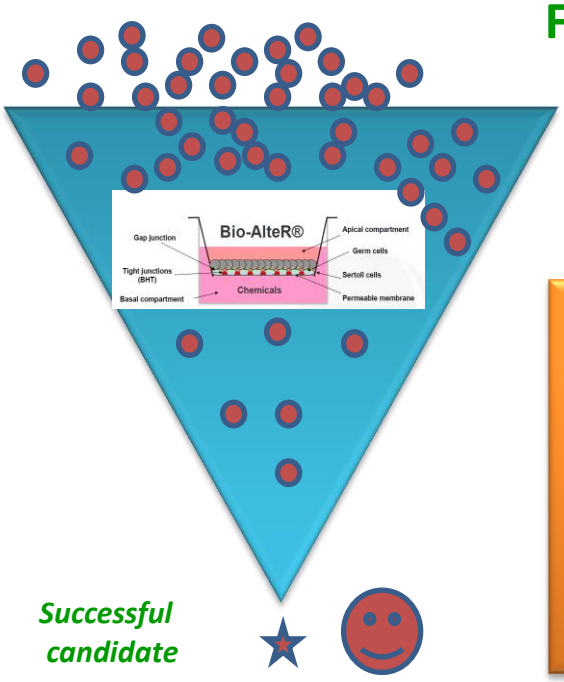
For highly predictive testicular toxicity

KALLISTEM

Environmental Application

Background

It has been well established that the physical environment has a measurable impact on male fertility (for example, over the last 50 years, there has been a reduction in average sperm count of 50%). Toxicants such as pesticides, heavy metals, pharmaceutical residues and endocrine disruptors are found in water, where they might interact with each other and even have a compounding effect (cocktail effect).
Industrial plants which release water need to ensure that the water is effectively treated to remove contaminants , and or that the concentrations of toxicants in water have been reduced to the appropriate levels.
Bio-AlteR® is an integrated approach which provides for testing of water in many environmental settings (from industrial wastewaters to hospital effluents to drinking water), to ensure it meets the required purity levels relating to male fertility.



Successful candidate

FROM A SCREENING PLATFORM…

Bio-AlteR® adult or juvenile model

Blood testis barrier (BTB) integrity
Trans-epithelial resistance (TEER) measurement

✓Modification of cell number populations
Cell viability and FACS analysis
Specific cell gene expression analysis
(6 different testicular cellular population and BTB components)
✓Endocrine Disruptor effects
Specific cell gene expression analysis
(hormones & signalling pathway)
✓Bio-AlteR® Sertoli Focus
✓Sertoli cell cuture / Leydig cell culture
(primary cells or cell line)

…TO A MODE OF ACTION DETERMINATION

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Why is Bio-AlteR® the solution to testicular toxicity issues ?

- Bio-AlteR® is a **3D cell based assay unique on the market.**
- Bio-AlteR® provides **reliable safety data on male fertility, relevant to effects on humans.**
- Bio-AlteR® is a **highly sensitive test** which detects the potential toxic impact of water on male fertility.
- Bio-AlteR® can evaluate the effect of a **cocktail of water contaminants** on spermatogenesis.
- Bio-AlteR® Bio-AlteR® can evaluate **the impact of an endocrine disruptor simultaneously on several ED signalling pathways,** allowing to mesure the effect on the **whole integrated physiological function**, so as not to leave out effects that could be missed through isolated tests.
- Bio-AlteR detects **many pathways of perturbation**: endocrine disruptors, heavy metals, pesticides, …
- Bio-AlteR® is a **medium throughput assay** allowing the testicular toxicity screening of a large number of samples, (8 weeks in average between the compound reception and the data report sending).
- Bio-AlteR® provides a deep understanding of the **mechanisms of toxicity in male fertility**.
- Bio-AlteR® **dramatically reduces the use of animals** (from 20 to 30 times).
- Bio-AlteR® is a **cost effective** solution for environmental toxicants studies.