Predictive toxicology in 3D tissue models

Teva Pharmaceuticals

Starting out in 1901 in Jerusalem
The company known today as Teva was established as a small wholesale drug business by Chaim Salomon, Moshe Levin and Yitschak Elstein. (They named it S.L.E after their names)

We came a long way in the last century

The **leading** global generic company

A strong specialty medicines portfolio, as well as OTC & API

Commercial presence in 80 markets

43,000 employees (5000+ in IL)

2016 revenues: **$21.9 billion**

Predictive toxicology

Development of in vitro "organ-on-a chip" microsystem technologies to study organ function and drug toxicity, improve predictability and as a replacement for animal testing.

Focusing on 2D and 3D liver tissues, then moving to heart, CNS with the aim to develop multi-organ on a chip systems

Establish **2D and 3D models of liver function**

Model validation with known examples (toxic/hepatotoxic in human vs. animal models)

Toxicology endpoints- cellular respiration, lipid accumulation, oxidative stress, metabolic changes, dynamics over time, cellular complexity and viability

" body on a chip"- other organs, combination models

Relevant Capacities

Molecular biology
- Cell systems : Cell lines /Primary cultures
- Genetic manipulation (KO tissue, transfections)
- Readout: physiological (Ca^{+2} imaging), phenotypic (High content screening), gene & protein expression

Toxicology
- Comparison to regulatory state of the art testing in diverse model systems
- Comparison to retrospective analysis using animal and human safety data
- Analysis and interpretation of complex data by our experts