Exploring Tissue Chips for Toxicity Testing: Tissue Chip Testing Consortium at Texas A&M University (TEX-VAL)

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The Tissue Chip Testing Consortium at Texas A&M University (TEX-VAL) was founded in 2020 for government, industry, and private parties interested in exploring the potential role of technology within "Next Generation" human health assessments. Consortium members benefit from expertise collaboration and shared cost structure while promoting development of the scientific data needed to integrate tissue chip models into safety assessments and decision-making. The overall goal of the project is to bring together various regulatory science stakeholders to (*i*) define a work plan that identifies common needs for "tissue chips", (*ii*) execute the work plan by producing robust and reproducible data, and (*iii*) refine investigated models based on research and Consortium members' needs. To date, the Consortium has investigated kidney, liver, gut, blood brain barrier, female reproductive system, and lung "tissue chip" models. The resulting products of this research will be made publicly available through dissemination of research publications and reports.

TEX-VAL Consortium members include Bristol-Myers Squibb, Sanofi-Aventis, Merck Healthcare, Roche, Unilever, American Chemistry Council, NIH-NIEHS-NTP, and EPA-NCCTE.

In 2023, the TEX-VAL Consortium plans to test a battery of MPS for determining modalities and points-of-departure of organ-specific compounds. This entails testing a reasonably large number of compounds to determine concentration-response data, using liver, kidney, gut, and blood brain barrier models, to establish model performance.

Implications: The results of this research will serve to better define the innovative and impactful position tissue chips models might occupy within the world of new approach methodologies focused on human health.

Project start and end dates: January 2023 – January 2024

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