3D model of Ewing's sarcoma

Ewing’s sarcoma is a cancer of the bone and soft tissue, with five-year survival rates around 70% and long-term survival rates of metastatic cancer between 10-25%. Current research and drug discovery efforts are mainly based on in vitro 2-D models, but these cannot capture the true three-dimensional progression of tumors – underlined by the fact that few drug candidates translate in vitro effects into in vivo studies, and even fewer are effective in clinical trials. This technology describes a 3D model of Ewing’s sarcoma that will aid in disease drug target identification and speed up drug discovery efforts. Ewing’s sarcoma cells are cultured with decellularized bone scaffold, better mimicking the in vivo tumor environment.

Use of 3D model of Ewing’s sarcoma may lead to better drug candidates

As the 3D model will encompass the in vivo tumor environment, it can help identify new drug targets that were not present in conventional 2D drug screening models. This will lead to identification of more promising candidates for slowing, stopping, and reversing tumor growth and progression. Also, the 3D model may be used as a better predictor of in vivo activity of potential drugs. Most drug candidates fail to work in whole animal models and in clinics due to in-activity of drugs. This technology could assist in better identifying drugs that will transition from basic research to clinical trials. It could also be used with patient-derived Ewing’s sarcoma cells, accelerating the personalized approach to cancer treatment.

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Applications:

- Model to study Ewing’s sarcoma.
- Use to screen potential therapeutics towards Ewing’s sarcoma.
- Predict efficacy of Ewing’s sarcoma drug candidates.
With patient-derived cells, could personalize cancer treatment.

**Advantages:**

- Generates a complex tumor environment that better mimics Ewing’s sarcoma than conventional 2D cell culture.
- Can be used to understand interactions between the tumor and tumor environment to identify novel drug targets.

**Patent information:**

Patent pending

**Licensing Status:**

Available for licensing and sponsored research support

Tech Ventures Reference: IR CU14010

**Related Publications:**

**Inventors**

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