Accelerated Preclinical Efficacy Testing of Cancer Therapeutics

PDX LIVE™
EFFICACY STUDIES ON DEMAND

Highly characterized, clinically relevant models.
Fast study start-up and optimized study designs.
Time to data measured in weeks, not months.

FAST-TRACK YOUR EFFICACY TESTING PROJECTS

Our In Vivo Pharmacology Services now offers optimized Patient Derived Xenograft (PDX) efficacy studies utilizing its PDX Live™ library. These select tumors are kept at low passage in live donor mice, enabling fast-tracked efficacy testing studies for pre-clinical cancer drug development, potentially saving months of pre-study time (Figure 1).

Figure 1. PDX-engrafted mice are a fast and cost-effective platform to simulate trials, evaluate multiple drugs alone or in combination, and produce predictive data.
PDX LIVE™ EFFICACY SERVICES

THE 3 STEPS

1 SELECT A PDX LIVE™ MODEL

For Specific Model Availability, Contact:

Technical Information Services
micetech@jax.org
1-800-422-6423 (US, Canada & Puerto Rico)
1-207-288-5845 (from any location)
jax.org/technical-support

Figure 2. Low-passage samples retain heterogeneity and fidelity of human cancers. Engrafted tumors derived from a patient with a bladder urothelial papillary carcinoma have high concordance of tumor morphology, compared to low passage PDX tumor TM00015. A) Histology from the patient’s primary tumor: a high grade urothelial carcinoma invading bladder wall. B) Once engrafted, the histology for PDX model TM00015 at passage 1 also corresponds to a high grade urothelial carcinoma. C) Tumor cells - of patient origin- within the xenograft stained positive using an anti-human antibody for Ki67.

To streamline the execution of your PDX cancer studies, we offer a collection of PDX Live™ tumor-engrafted NSG™ mice ready for rapid enrollment in preclinical efficacy studies at our facility or for expedited shipment to yours.

PDX Live™ models are thoroughly characterized and retain the genetic and phenotypic characteristics of the original patient tumors. Several studies1-6 have demonstrated that when using NSG™ mice as hosts, PDX tumor responses to standards of care (SOC) and experimental drugs resemble the responses seen in patients.

<table>
<thead>
<tr>
<th>TYPE</th>
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<tbody>
<tr>
<td>BLADDER</td>
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<td>BREAST</td>
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<tr>
<td>COLON</td>
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<tr>
<td>LUNG</td>
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<td>PROSTATE</td>
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<td>SKIN</td>
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1  SELECT A PDX LIVE™ MODEL

TYPE
2 CHOOSE A STUDY

STUDY TYPES 1-3 INCLUDE THE FOLLOWING:

<table>
<thead>
<tr>
<th>Study Type</th>
<th>Arms</th>
<th>Vehicle</th>
<th>SOC</th>
<th>Drug A</th>
<th>Drug B</th>
<th>Combination Drug A+B</th>
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<td>2. Dose Response</td>
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<td>1</td>
<td>1</td>
<td>3</td>
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<td>3. Drug Combination Efficacy</td>
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<td>1</td>
<td>1</td>
<td>1</td>
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<tr>
<td>4. Tolerability</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>2</td>
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TOLERABILITY STUDIES INCLUDE THE FOLLOWING:

- 5 mice per arm
- IV or IP dosing – no limit on frequency (Oral dosing includes an additional charge)
- Three times weekly to once daily body weight measurements – 14 days
- Results reported in spreadsheet

3 START YOUR EFFICACY STUDY & MONITOR DATA LIVE

Figure 3. We provide you data in weeks with study-ready clinically relevant patient-derived xenografts in the most robust mouse models.

* The average time needed to generate PDX cohorts with sufficient tumor growth is 6 weeks. However, the tumor growth rate varies for each PDX Live model.

Figure 4. Sample pilot combination study: Mice bearing passage 3 colon adenocarcinoma PDX tumor (TM00170) were treated with vehicle control: D5W (dark grey), 20mg/kg 5-Fu (light blue), 10mg/kg Oxaliplatin (orange) and 5-Fu + Oxaliplatin (red) once per week for 3 weeks. Vehicle and 5-Fu were administrated intravenously and Oxaliplatin was dosed intraperitoneally. The readout for compound efficacy—alone or in combination—was assessed by taking tumor caliper measurements and body weight twice weekly. Ten NSG™ mice were used per arm.
SUPPORTING SERVICES

**PDXSeq**
- DiscoverSeq: Deep sequencing for 358 cancer associated mutation panel
- Whole Exome Sequencing
- RNAseq: Untreated vs. treated or testing of non-responsive tumors

**ASK US ABOUT**

**OVER 400+ ADDITIONAL PDX TUMORS**

- 400+ characterized models are annotated and available for review.
- Search our database for the right model (tumor. informatics.jax.org).
- We’ll prepare a custom program that includes cryo-recovery of the tumor and expansion for the enrollment of a study.

REFERENCES


