# The CrownBio PDX Collection

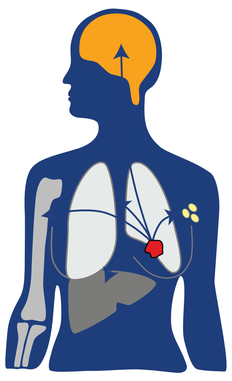
## The World's Largest Commercial Collection for Preclinical Drug Discovery

CrownBio
CONNECTING SCIENCE TO PATIENTS

## INTRODUCTION

Patient-derived xenografts (PDX) provide the most predictive preclinical model available for drug discovery studies. Derived directly from patient tissue, and never established *in vitro*, PDX closely recapitulate original tumors, including histo- and molecular pathology, driver mutations, and oncogenic changes.

PDX growth and response to SoC correlate well with patient clinical response. Therefore, when moving towards clinical trial, panels of PDX provide highly predictive data for guidance on indication or patient clinical stratification, and enable the greatest likelihood of success in the clinic.

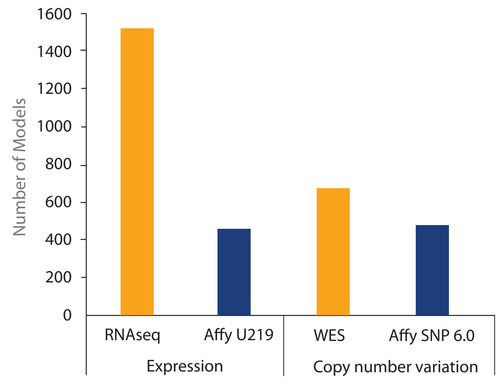


## MOLECULAR PROFILING

Our models are extensively profiled, allowing model selection based on genetic features such as gene expression, copy number, mutation, and fusion. Both NGS and microarray data are available, with almost 90% of models in HuBase™ our PDX database already RNAseq'd.

Our PDX collection contains clinically relevant, unique models of specific disease pathways for targeted therapy such as:

- RET
- EGFR
- IDH
- HER2
- ALK
- MET
- RSPO




## PDX COLLECTION

**HuPrime®** (solid tumor) and **HuKemia®** (blood cancer) models provide the world's largest well-characterized commercial PDX collection:

- 2,500 models (established + under development)
- Over 30 cancer types
- From US, European, and Asian populations

Our PDX collection contains large panels of common cancer types, as well as unique collections of rare disease models such as:

- AML (**6 models**)
- GIST (**13 models**)
- Prostate cancer (**4 models**)
- TNBC (**17 models**)

We also provide PDX of innate and acquired resistance, models derived from metastatic lesions, and PDX derived from pretreated and treatment naive patients. All models are well annotated for patient information, diagnosis, and treatments, and are genetic fingerprinted.

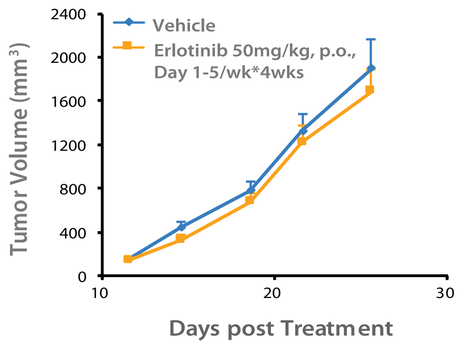
PDX Models Established and Under Development

| | |
|---|---|
| Acute lymphoblastic leukemia (ALL) | 42 |
| Acute myeloid leukemia (AML) | 6 |
| Adrenal | 3 |
| Bladder | 38 |
| Brain | 32 |
| Breast | 67 |
| Cervical | 25 |
| Cholangiocarcinoma | 24 |
| Chondromyxoid fibroma | 1 |
| Colorectal | 378 |
| Esophageal | 113 |
| Fallopian | 2 |
| Gallbladder | 13 |
| Gastric | 163 |
| Gastrointestinal stromal (GIST) | 13 |
| Head and neck | 126 |
| Kidney | 35 |
| Liver - HCC | 81 |
| Liver - Other | 63 |
| Lung - NSCLC | 256 |
| Lung - SCLC | 55 |
| Lung - Other | 117 |
| Lymphoma - HL | 2 |
| Lymphoma - NHL | 16 |
| Lymphoma - Other | 26 |
| Melanoma | 262 |
| Mesothelioma | 1 |
| Mixed mullerian | 20 |
| Ovarian | 100 |
| Pancreatic | 177 |
| Peritoneal | 2 |
| Prostate | 4 |
| Sarcoma | 139 |
| Testis | 1 |
| Thyroid | 6 |
| Unclear primary site | 18 |
| Undergoing clinical confirmation | 14 |
| Uterine | 18 |

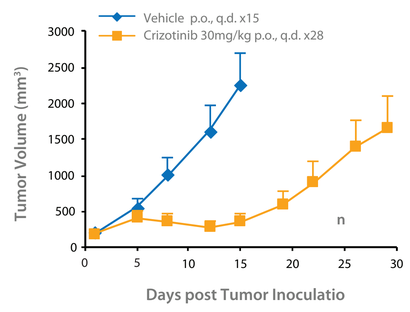
## TREATMENT DATA

Many PDX models have been treated with SoC agents appropriate to cancer type, or with experimental agents. Model profiling allows interpretation of results based on molecular features, or selection of models for novel test agents and resistance model development.

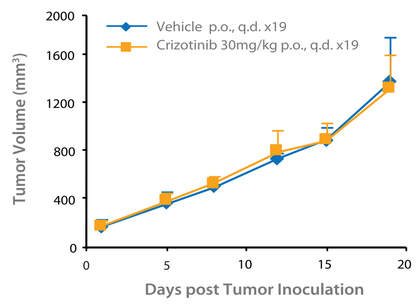
LU1901 NSCLC model, EGFR G719A mutation should confer erlotinib sensitivity; however, resistance is seen.




Profiling confirms MET amplification and high expression, METi crizotinib treatment results in partial response.




Repetitive crizotinib exposure creates the LU1902 crizotinib resistant model for next generation drug development.



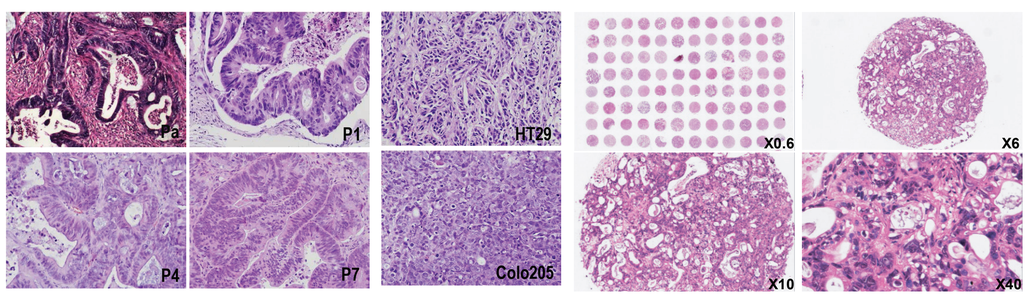

## HISTOLOGY ANALYSIS

After PDX model establishment, certified pathologists process small PDX tumor samples for histology staining to QC the model, evaluate metastasis, and study tissue specific biomarkers. Histology analysis shows PDX better conserve original patient histopathology than traditional xenografts.

| Model | Clinical Diagnosis | PDX Pathology QC |
|---|---|---|
| CR0012 | Adenocarcinoma of rectum, ulcerative type | Moderately differentiated tubular adenocarcinoma (P4, P8) |

Approximately 1,000 PDX models are also available within TMAs, for rapid assay screening and identification of molecular targets and diagnostic and prognostic markers, with other models available on demand.

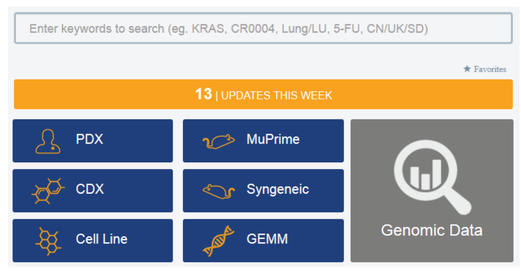
**PDX** | **Cell line derived xenograft**




## MODEL SELECTION

Choosing a model based on any of the background, histology, profiling, or treatment data is easy using our online collated PDX database – HuBase.


PDX can also be combined in integrated Onco*Express*™ model searches – which simultaneously searches across all CrownBio model collections.




## CONCLUSIONS

PDX provide highly predictive preclinical oncology models, to enhance drug development studies. Our large collection provides panels of clinically relevant solid tumor and blood cancer models, easily searchable from our collated databases for features of interest determined from molecular profiling analysis.



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