

CHEMPARTNER

DEDICATED TO LIFESCIENCE



INTEGRATED
ADC/XDC
DISCOVERY
SOLUTIONS

ONE-STOP ADC/XDC RESEARCH AND DEVELOPMENT

15+ YEARS OF EXPERIENCE AND CLINICALLY VALIDATED ADC SERVICES



PAYLOADS
AND LINKERS



IgG
BsAb
Fab
VHH



DMPK AND
EXPLORATORY
TOXICOLOGY



BIOLOGY AND
PHARMACOLOGY



BIOANALYTICAL
SERVICES
FOR ADCs



BIOCONJUGATION

CHEMPARTNER'S ADC/XDC PLATFORM SERVICES

- Target discovery to antibody development
- Medicinal chemistry
- Bioconjugation and characterization
- *In vivo* pharmacology and efficacy
- Pharmacokinetics
- Exploratory toxicology studies
- Integrated ADC drug development services from antibody research to IND filing

CHEMPARTNER'S EXTENSIVE EXPERTISE

- Design and synthesis of:
 - Hydrophilic linkers
 - Charged linkers
- Click chemistry
- Branched multi-drug linkers
- Bioorthogonal linkers

ChemPartner has collaborated with international and Chinese pharmaceutical companies in completing early-stage ADC development projects, applying for multiple patents, covering over 20 different targets, and synthesizing more than 1,000 innovative linker-payloads.

We have established various conjugation and analytical methods, enabling rapid development of customized ADC. In addition to traditional toxin-based ADCs, the team is also committed to developing XDCs that use small molecule immunomodulators, peptides, oligonucleotides, target protein degraders, and radionuclide as payloads.

15+

YEARS OF ADC
R&D EXPERIENCE

10,000+

BATCHES
CONJUGATED

1,000+

NOVEL CUSTOM
LINKER-PAYLOAD
SYNTHESIS

100+

ADC/XDC
SCIENTISTS

100+

GLOBAL CLIENTS
INCLUDING BISPECIFIC ADCs

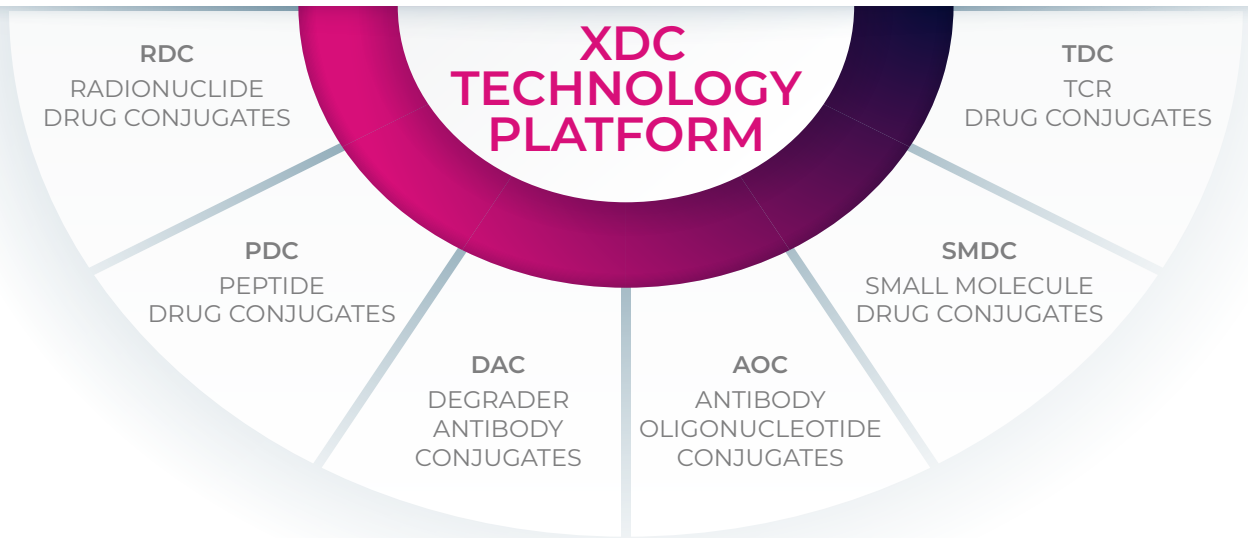
30+

ADC PROJECTS IN
PRE-CLINICAL OR
CLINICAL PHASE

STATE-OF-THE-ART
INSTRUMENTS

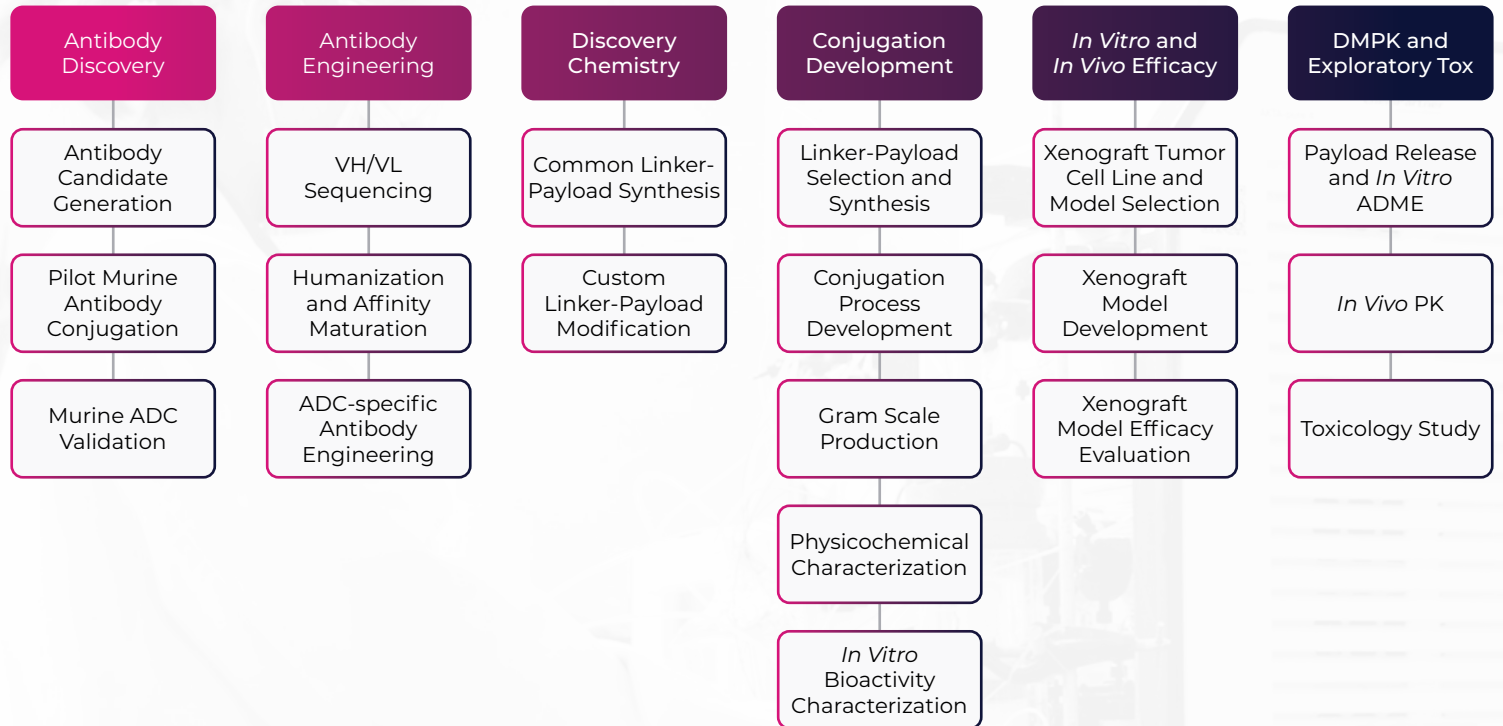
*MULTIPLE
CONJUGATION
PLATFORMS*

COMPREHENSIVE
SUPPORT OF *IN VIVO*
EFFICACY, PK/PD, AND
TOXICOLOGY STUDIES



ADC/XDC DISCOVERY AND DEVELOPMENT

A GENERAL WORKFLOW WITH A CUSTOMIZABLE SERVICE OFFERING

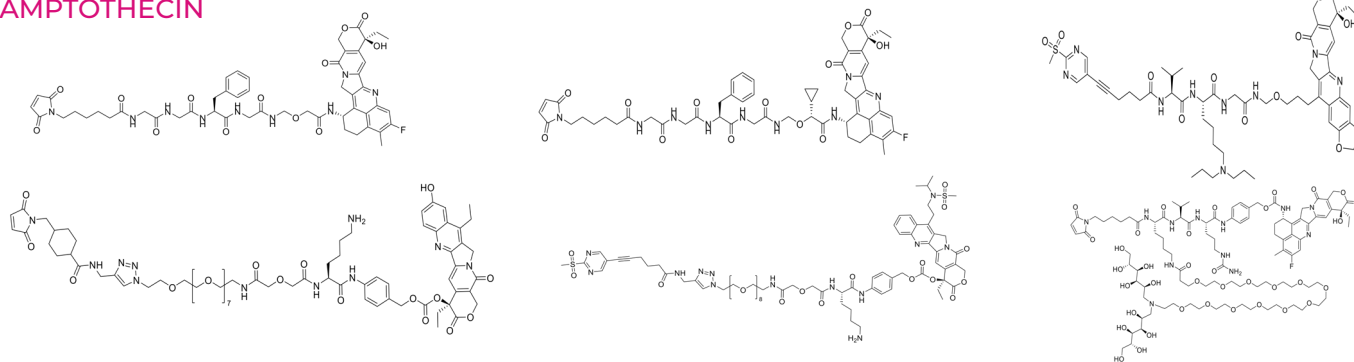


ADC CHEMISTRY DISCOVERY

ChemPartner's highly experienced chemistry team has synthesized over 1,000 linker-payload compounds in the last decade to support the ADC drug research work of our pharmaceutical and biotech clients.

We are skilled in hydrophilic groups, charged groups, click chemistry, branch linkers, and bio-orthogonal linkers and have a catalog of linker-payload products. OEB-5 safety level ADC drug development laboratory can complete toxin synthesis at the 50-gram scale and supports GLP toxicology studies.

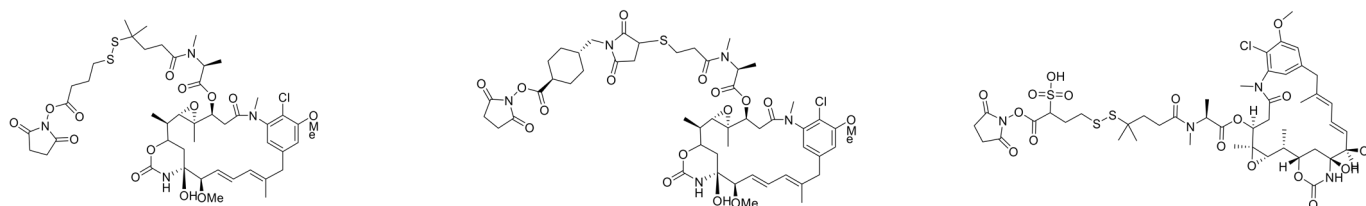
CAMPTOTHECIN



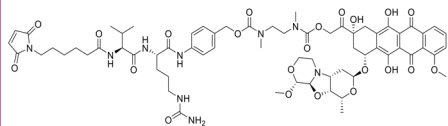
AURISTATIN



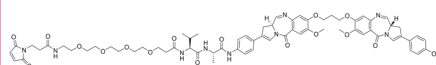
MAYTANSINOID



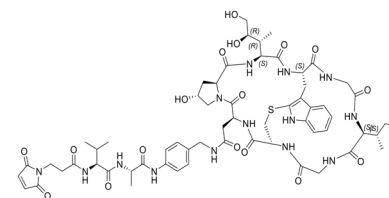
PNU



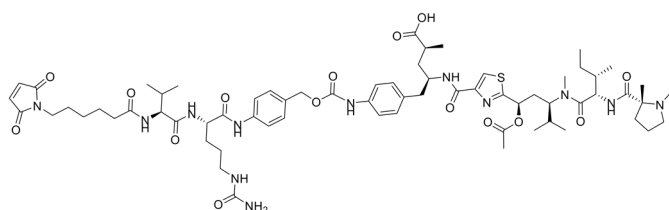
PBD



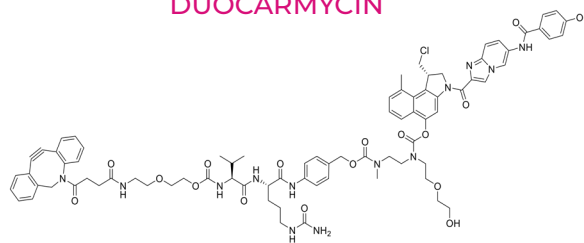
AMOTOXIN



TUBULYSIN

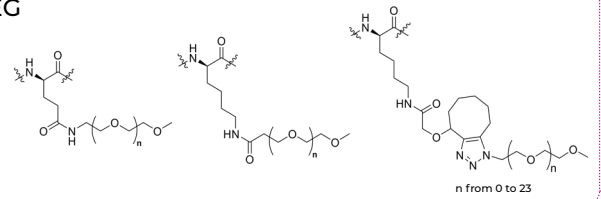


DUOCARMYCIN

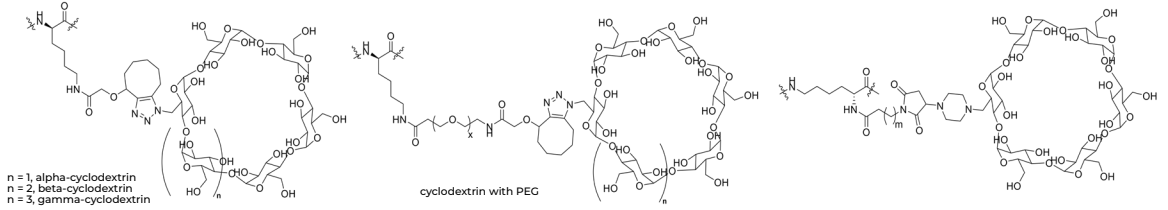


HYDROPHILIC LINKER

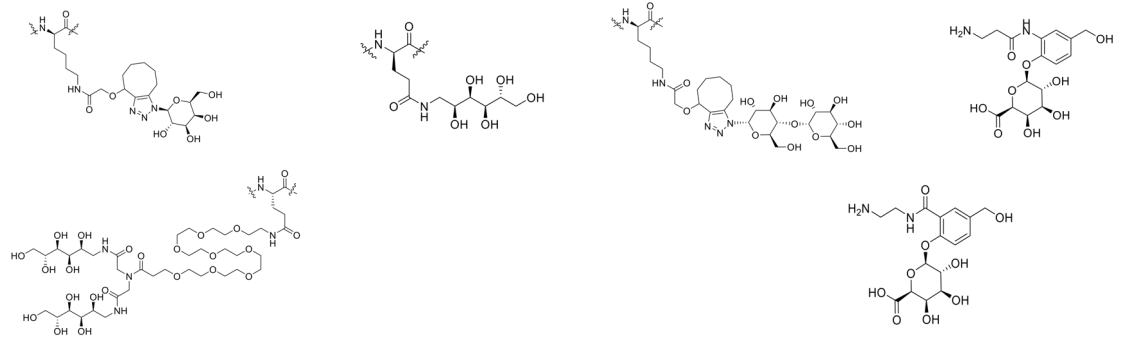
PEG



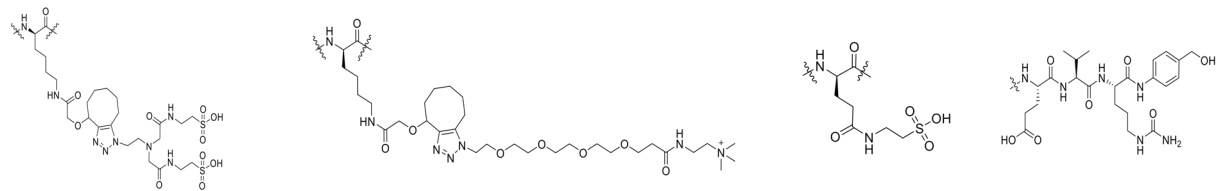
CYCLODEXTRIN



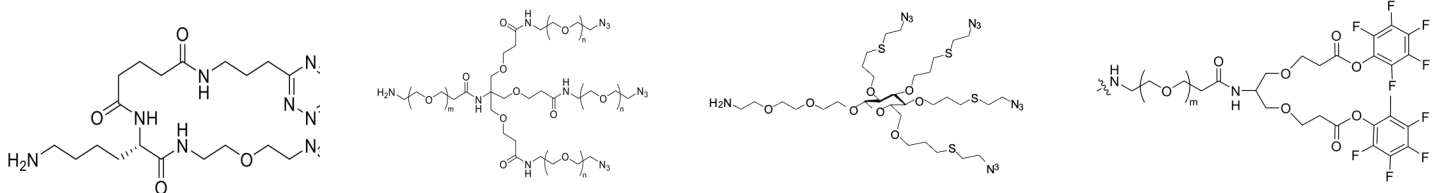
SUGAR



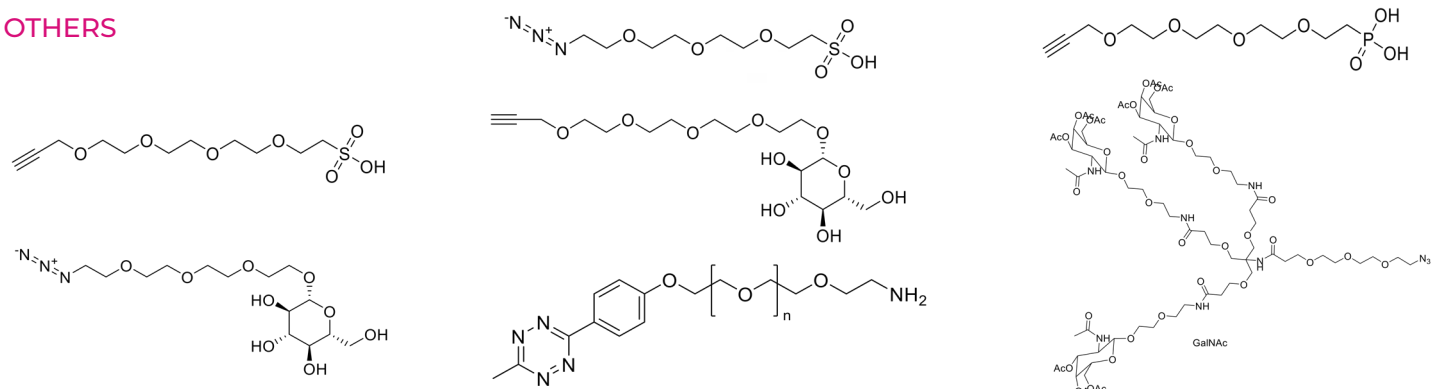
CHARGED LINKER



BRANCHED LINKER



OTHERS

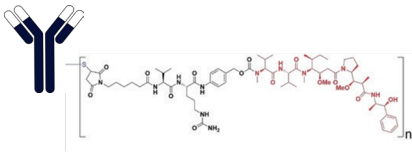


ADC DRUG CONJUGATION AND PROCESS DEVELOPMENT

With over 15 years of experience in ADC drug conjugation and process development, the team supports the optimization of various chemical conjugation and enzyme-catalyzed site-specific conjugation methods.

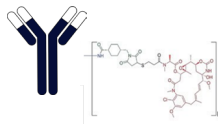
SULFHYDRYL-MALEIMIDE CONJUGATION

Ab-MMAE Conjugation



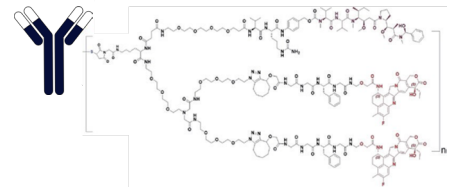
AMINE GROUP CONJUGATION

Ab - DM1 Conjugation

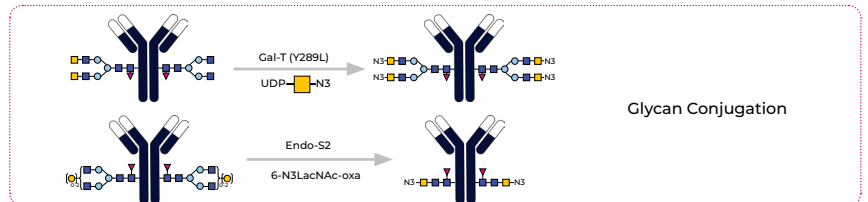
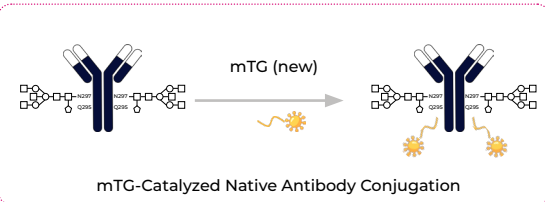
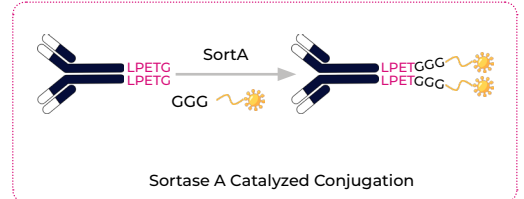
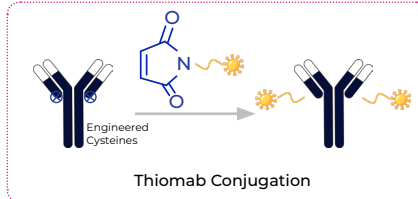
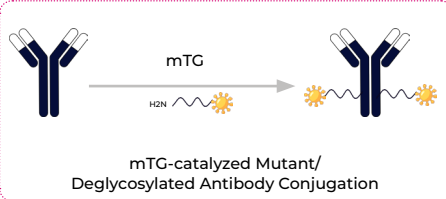


MULTI-PAYLOAD CONJUGATION

Branched(MMAE +Dxd) Conjugation

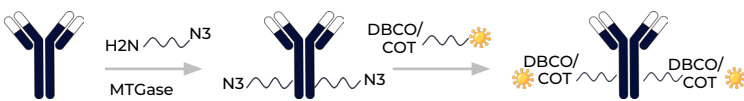


SITE-SPECIFIC CONJUGATION METHOD



CLICK CHEMISTRY CONJUGATION METHOD

Two-step Conjugation

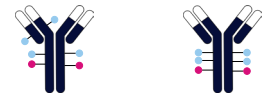


DUAL-PAYLOAD ADC

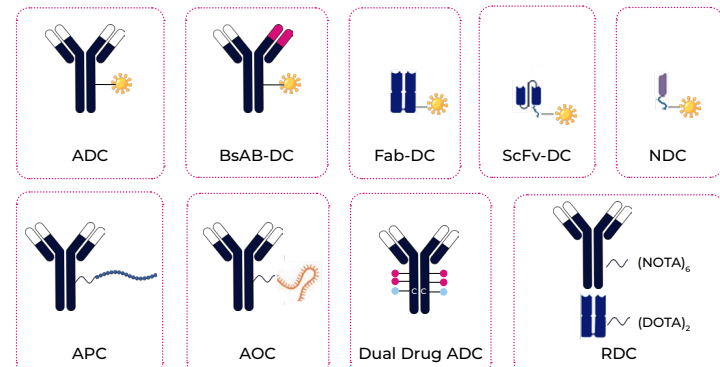
Dual-payload by branched linker-payload



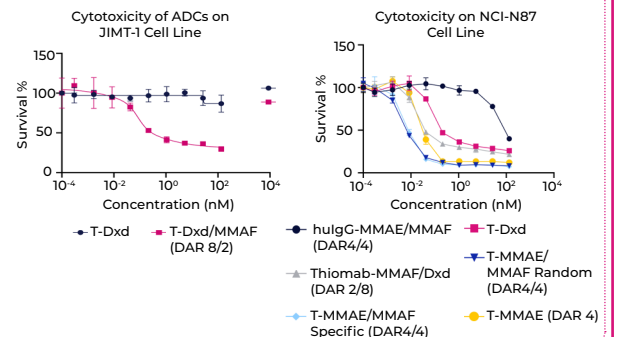
Dual-payload by combination of site-specific conjugation technologies



MULTIPLE CONJUGATE MODALITIES



Combination of payloads for broadened potency by killing resistant tumor cells and bystander effect.



ADC/XDC CHARACTERIZATION

Our highly experienced analytical team is equipped with a complete set of advanced analytical instruments for antibodies and ADCs.

IN VITRO

- Physicochemical Characterization
 - DAR, Endotoxin, Molecular weight confirmation, Aggregation, Organic Solvent Residues, Linker Residues Isoelectric Point, Peptide Map, Bioburden, etc.
- Bioactivity Analysis
 - FACS binding, Internalization, ADCC, CDC, cytotoxicity analysis, bystander effect, ICD

IN VIVO

- *In vivo* Efficacy Studies
 - Hundreds of tumor models providing a platform for fast efficacy studies.
- PK/PD and Toxicity Studies
 - Mouse, Rat, NHP, etc.

EQUIPMENT AND TECHNOLOGY

- | | |
|----------------------|---------------------|
| • Carterra® LSA | • Maurice |
| • Octet RED384 (BLI) | • Jasco CD |
| • Q Exaltive | • Sciex Pa 800 Plus |
| • Malvern VP-DLC | • Uncle |
| • Biacore™ 8k (SPR) | • HPLC |

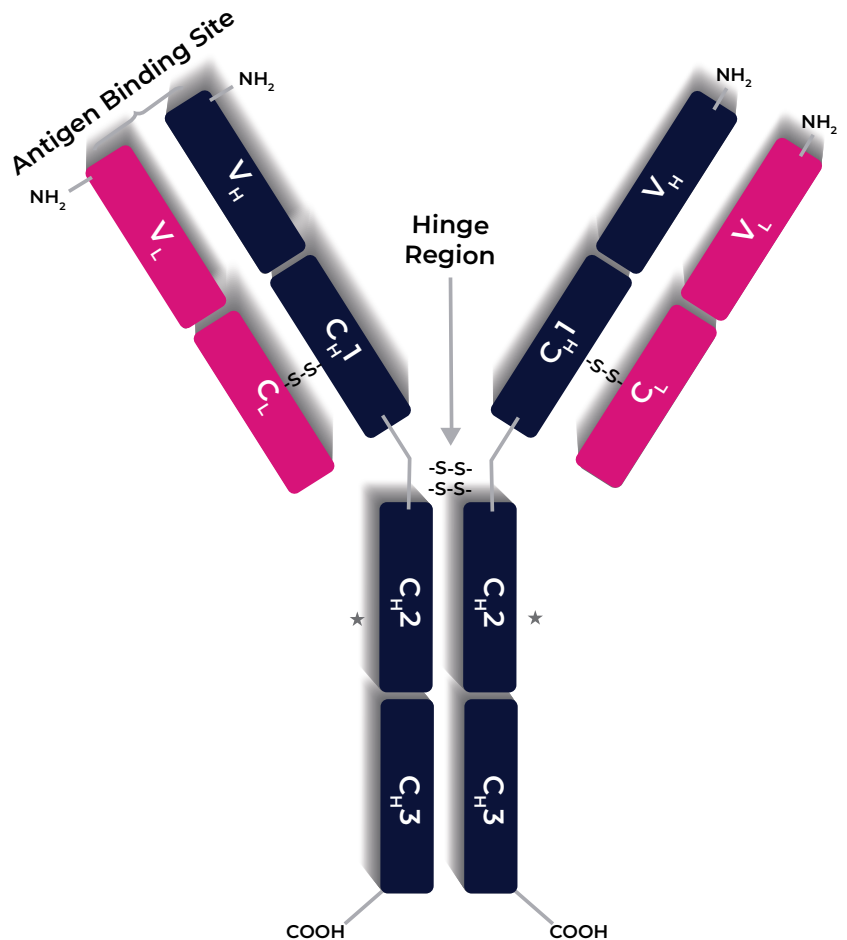


mAb AND ADC CHARACTERIZATIONS

- Sequence coverage and PTMs (LC-MS)
- Peptide mapping
- Purity-SEC-HPLC
- Purity-CE-SDS
- Charge variance – ICIEF- CEX
- Affinity – SPR/BLI
- High order structure – CD
- Thermal stability – DSC/DSF
- Particle size – DLS
- Potency – ELISA, cell-based assay
- Residue – HCP, HCDNA, ProA

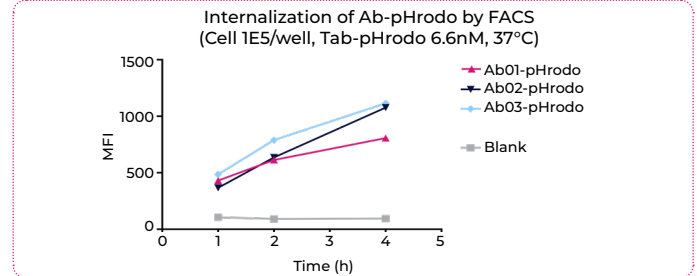
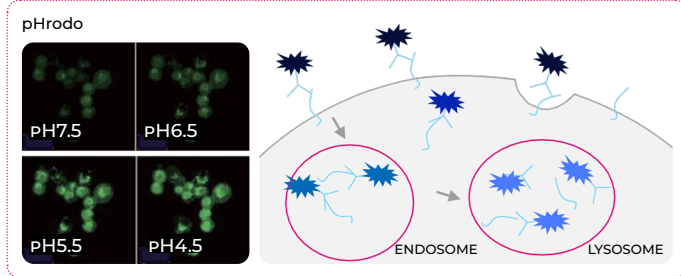
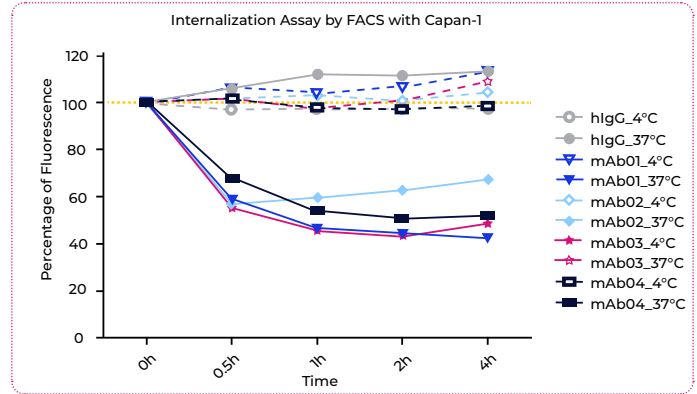
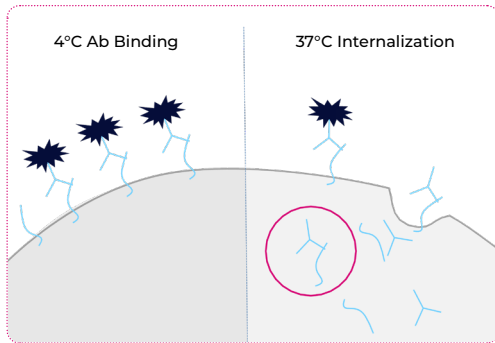
ADCs SPECIFIC ANALYSIS

- DAR Analysis
 - SEC-MS
 - RPLC-MS
 - HIC
 - RPLC
 - UV/VIS
- Process-related Residuals Analysis
 - Free drug by RPLC-MS
 - Residual solvent by GC

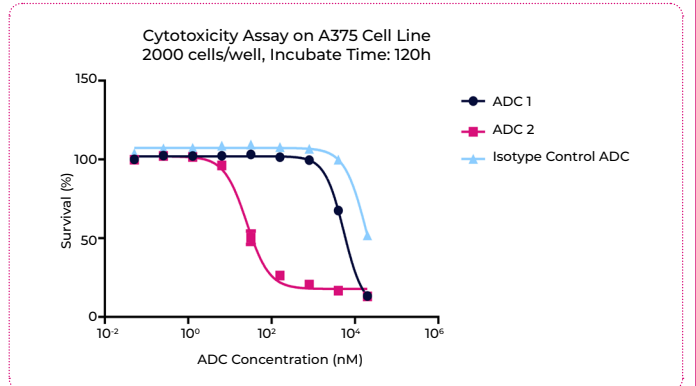
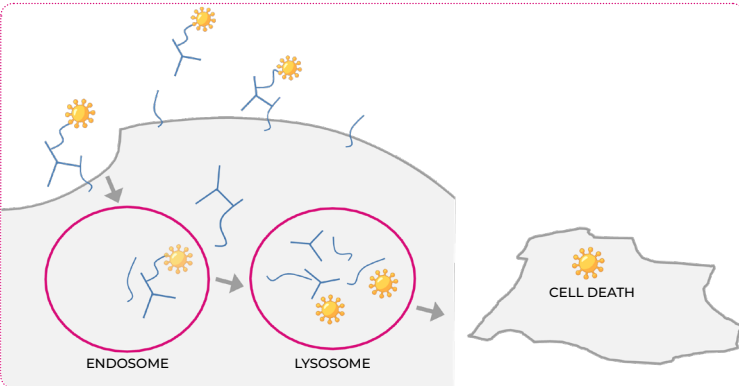


COMPREHENSIVE *IN VITRO* BIOACTIVITY CHARACTERIZATION

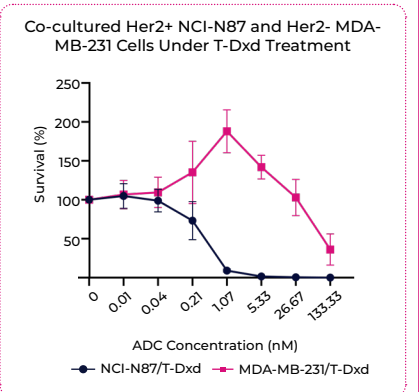
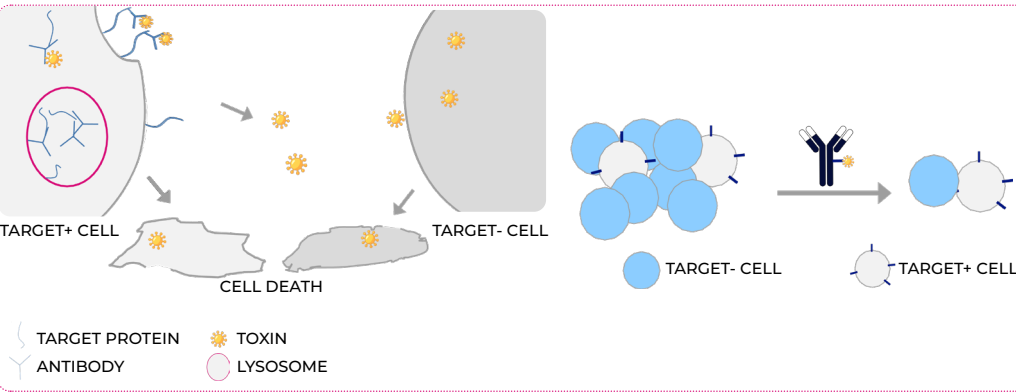
INTERNALIZATION ASSAY



CYTOTOXICITY ASSAY



BYSTANDER KILLING ASSAY



IN VIVO PHARMACOLOGY

IN VIVO EFFICACY CAPABILITY OVERVIEW

HUMAN TUMOR CELL LINE XENOGRAFT (CDX) MODELS

- 320+ CDX models
- Subcutaneous, orthotopic, metastatic, and systemically disseminated models
- Validated clinical approval drugs include ENHERTU® (DS8201), KADCYLA® (T-DM1), and Herceptin

SYNGENEIC MODELS

- 50+ models
- Subcutaneous, orthotopic, metastatic, and systemically disseminated models
- Suitable for evaluating combination therapies, including immunotherapy combinations

PATIENT-DERIVED XENOGRAFT (PDX) MODELS

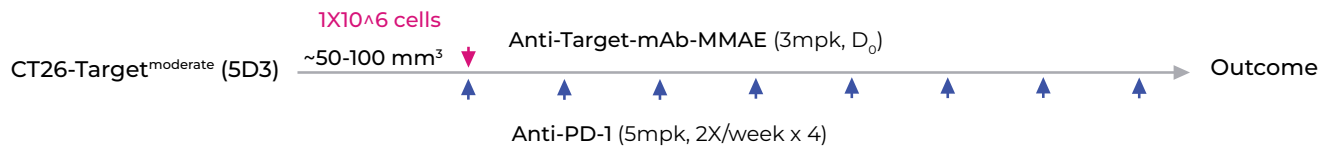
- 500+ Models validated by growth curves and Soc data
- 60+ PDX-derived primary tumors (PDCs)
- Get access to over 7,000+ PDX models with collaborator

MAXIMUM TOLERATED DOSE (MTD) MODELS

- Tumor-bearing mice
- Non tumor-bearing mice
- PK, PD, PK/PD correlation

IN VIVO EFFICACY CASE STUDY

ADC AND ANTI-PD1 COMBINATION

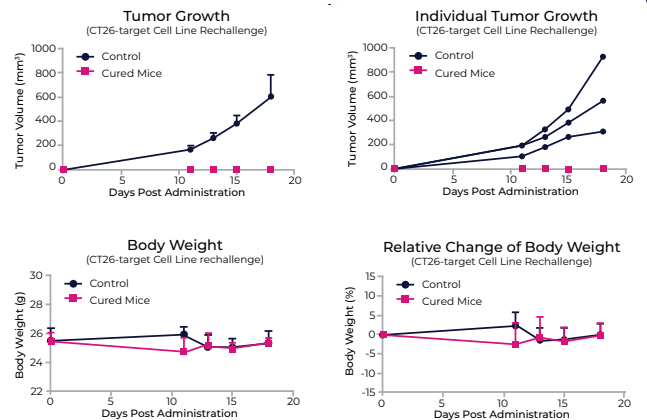
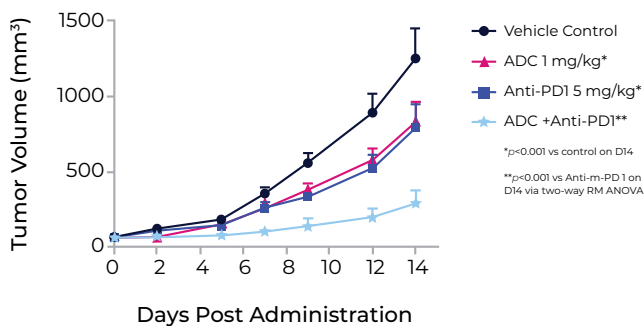


- Administration of lower dose of ADC with moderate antigen-expression CDX model
- Syngeneic antitumor effect observed for repeated dosing of anti-PD-1 mAb after the administration of ADC

TUMOR CELL RE-CHALLENGE

- The 3 survived mice were re-challenged with 1×10^6 CT26-Target expressing tumor cells in comparison with previously untreated mice
- All mice in control group had tumors within 12 days, while all 3 survived mice from the previous treatment had no observed tumor growth

Efficacy Comparison: ADC and anti-PD1 and Combo Administration

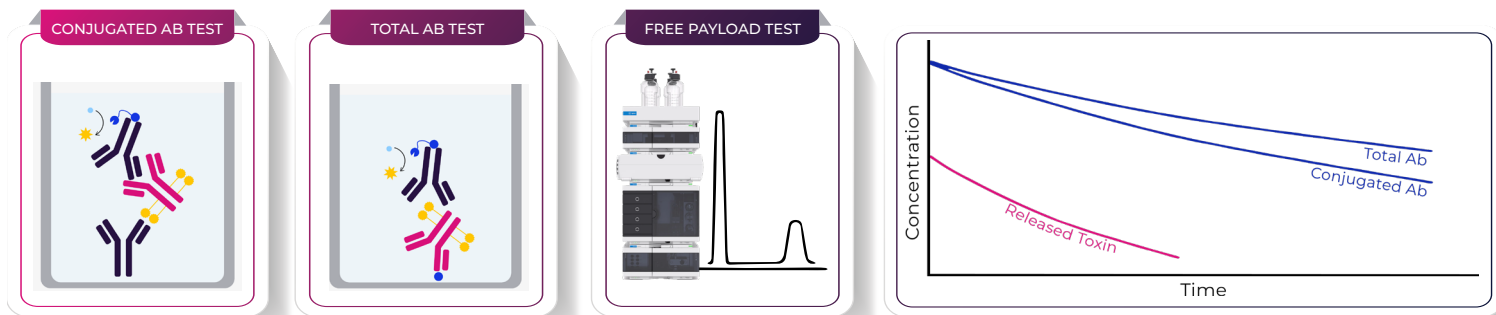


DMPK AND EXPLORATORY TOXICOLOGY

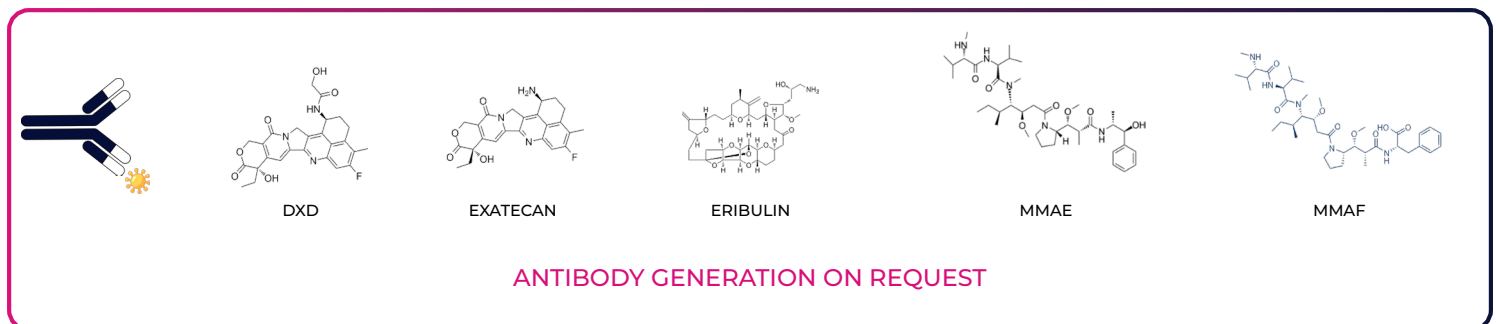
ADC/XDC FROM OPTIMIZATION TO IND/NDA SUBMISSION

ChemPartner's DMPK platform supports a wide range of bioanalysis (small molecules, proteins, and biomarkers), PK, PK/PD model evaluations, toxicology studies, payload release/metabolism studies, and in vitro ADME assessments. The platform provides high-quality, efficient, one-stop services for ADC/XDC projects from optimization to IND/NDA submission.

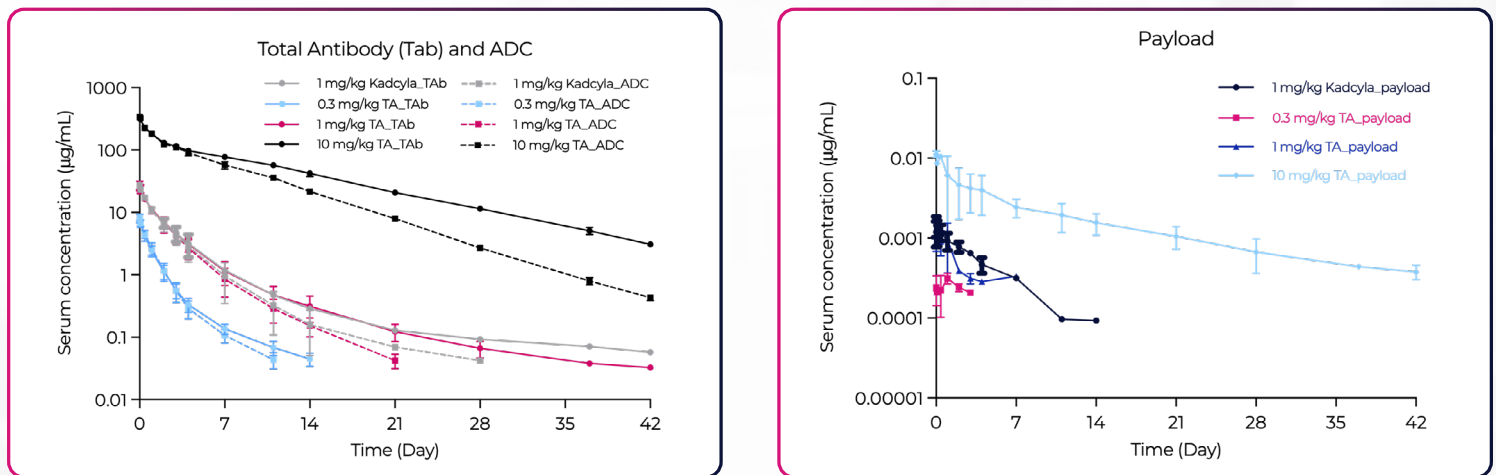
MOUSE, RAT, MONKEY PK



FREE PAYLOAD ANALYSIS IN-HOUSE ANTI-PAYLOAD mAbs



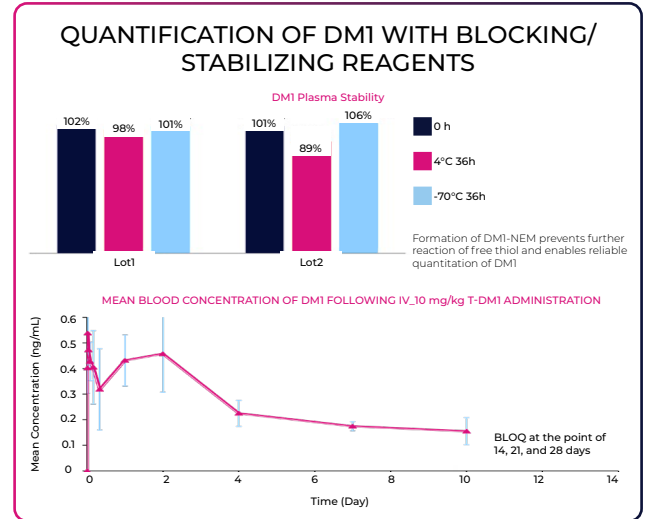
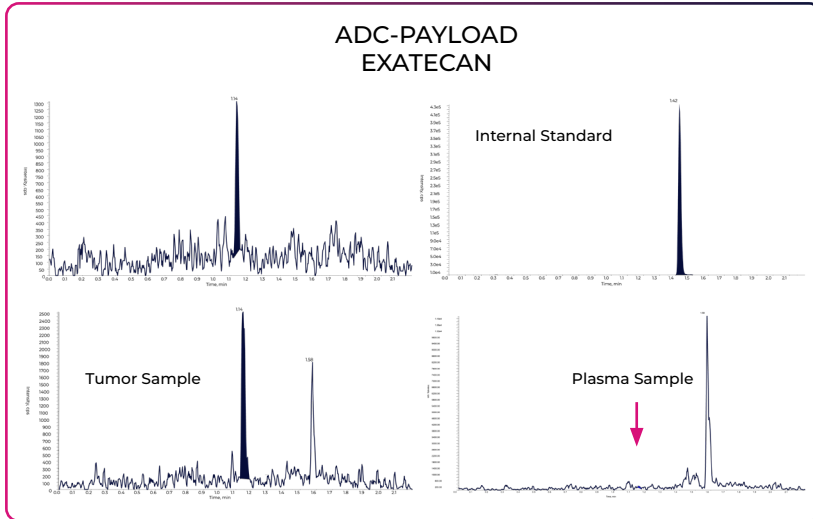
TARGET-MEDIATED CLEARANCE IN CYNOMOLGUS MONKEY



BIOANALYSIS

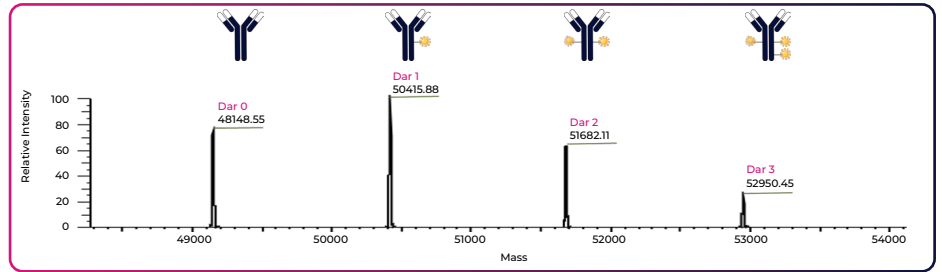
HIGH-QUALITY SERVICES FOR QUALITATIVE AND QUANTITATIVE DRUG ANALYSIS

FREE PAYLOAD ANALYSIS

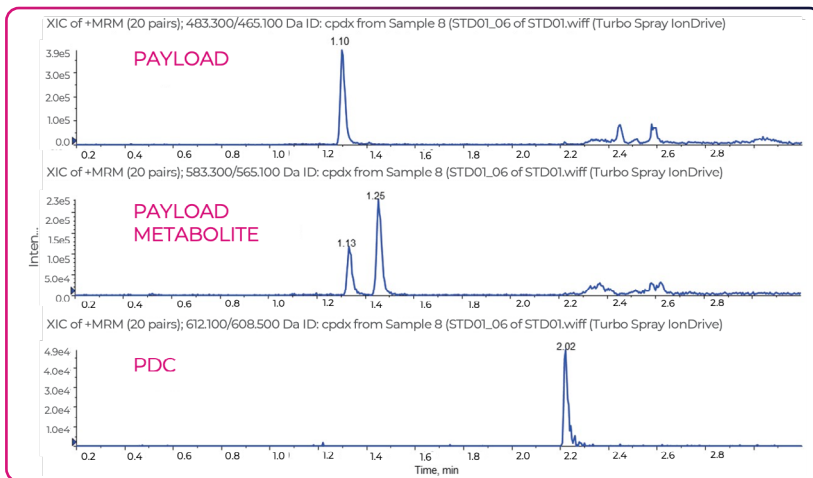


DAR VALUE DETERMINATION

- IMMUNE ENRICHMENT**
 - In vitro stability samples
 - In vivo pk samples
 -
- DEGLYCOSYLATION REDUCTION**
 - For Cysteine-conjugated ADC
 - If needed
- LC SEPARATION**
- HRMS ANALYSIS**
 - Deconvolution
 - Data analysis



PDC BIOANALYSIS



TARGET PEPTIDE

- Target specific
- Cell penetration

LINKER

- Non-cleavable
- Cleavable

PAYLOAD

- Cytotoxic agent
- Radionuclides
- Imaging agents

EXPERIENCE WITH PDC PAYLOADS

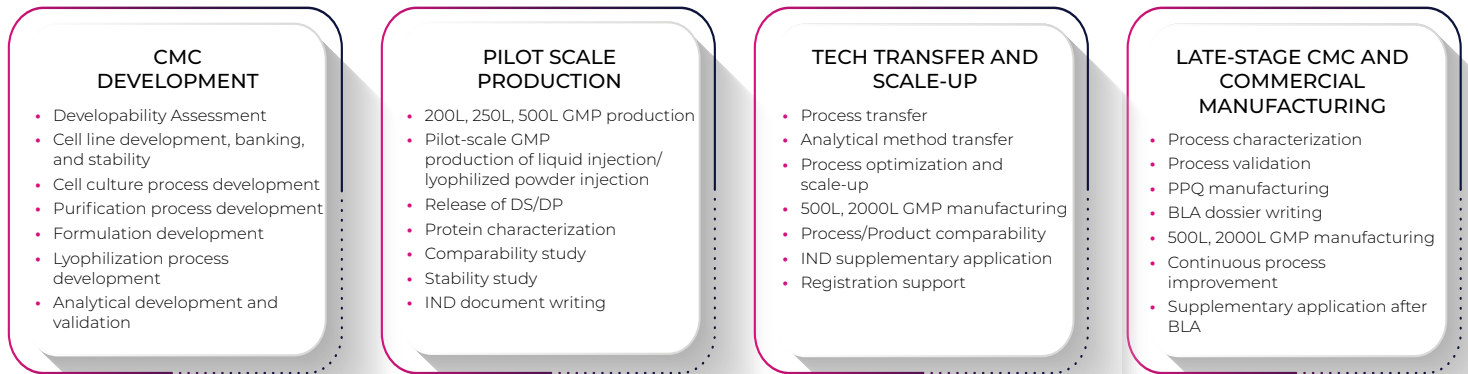
- Doxorubicin
- Paclitaxel
- Daunorubicin
- Gemcitabine
- and more

BIOANALYSIS INSTRUMENTS



CDMO SERVICES

BIOLOGICS CMC DEVELOPMENT AND GMP MANUFACTURING TO SUPPORT IND/NDA APPLICATION AND BEYOND



FORMULATION DEVELOPMENT SERVICES FOR ADCs



SCALE-UP FROM LAB TO COMMERCIAL MANUFACTURING

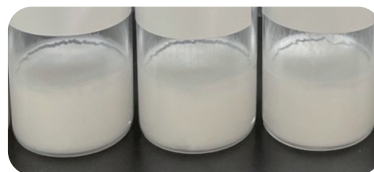


0.5m² — 1.5m² — 2.8m² — 15.4m² FREEZE DRYERS



MELTING
MOISTURE 1.5%

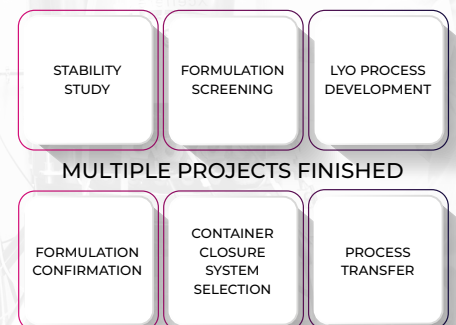
PROCESS OPTIMIZATION →



WHITE LOOSE BODY
MOISTURE 0.5%

ADC FORMULATION AND FREEZE-DRYING PROCESS

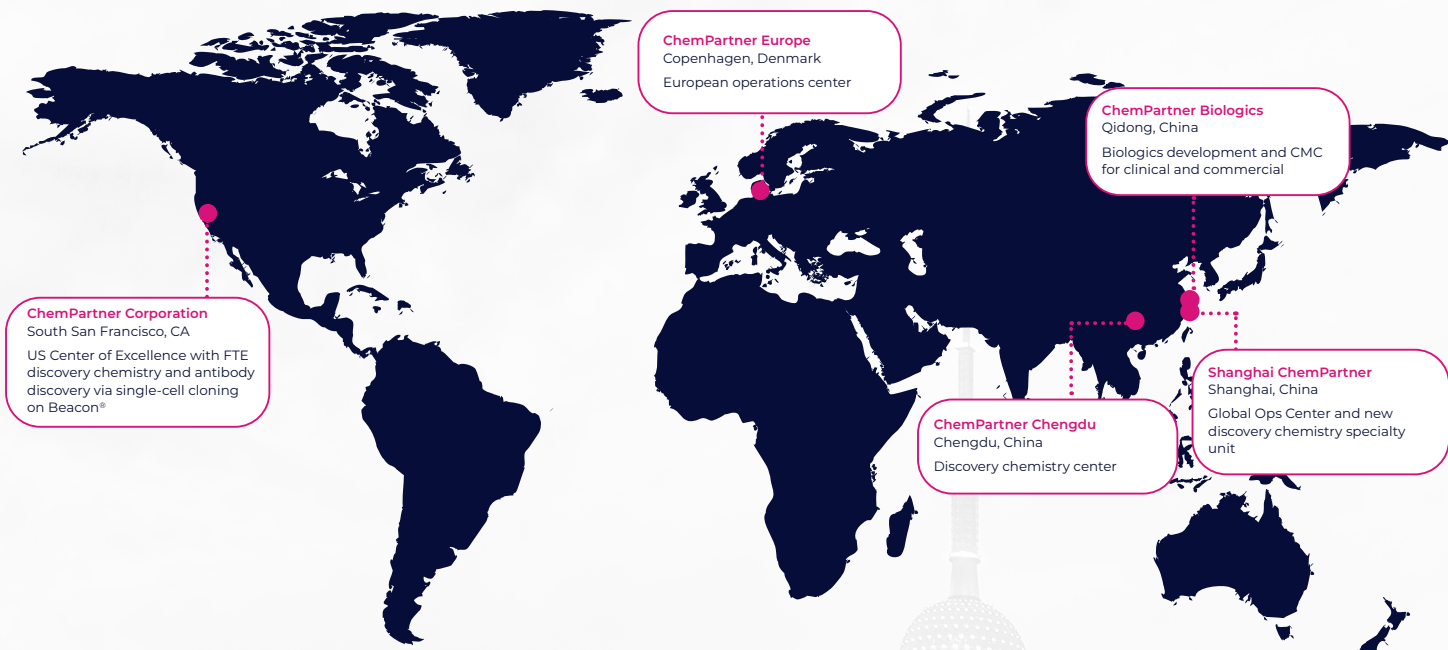
EFFICIENT AND ROBUST



[▶ LEARN MORE](#)

A GLOBAL FOOTPRINT

SERVING A DIVERSE GLOBAL CLIENT BASE IN THE US, EUROPE, AND CHINA



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DEDICATED TO LIFESCIENCE

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