RenMab
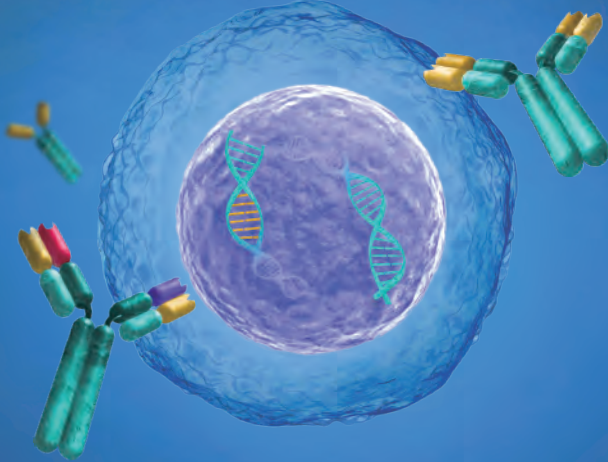
An Innovative Platform from Biocytogen
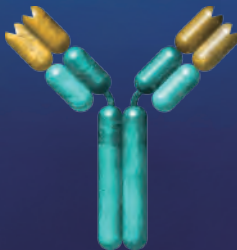
The RenMice® Family

Biocytogen uses its proprietary RenMab™, RenLite® and RenNano® mouse platforms for fully human monoclonal, bispecific/multispecific antibody and nanobody discovery.

RenMice® Family

RenMab™

Best-in-class fully human antibody platform

Full human heavy chain and kappa light chain V(D)J loci substitution

Available for partnership

RenLite®

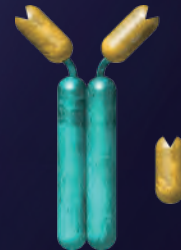Bispecific/multispecific antibody discovery platform

Full human heavy chain repertoire combined with a common light chain substitution

Available for partnership

RenNano®

Heavy chain only antibody (HCAb) & Nanobody platform

Fully human heavy chain V(D)J loci substitution with modified constant regions
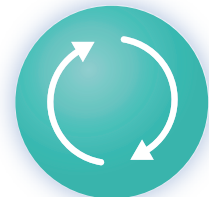
Available for partnership

Partnership

Licensing Options

License directly with Biocytogen Option to use through other CROs or in-house

Co-development Opportunities

Exclusive partnership opportunities using the RenMice™ HiTS Platform

Flexibility

Flexible terms tailored to accomodate different antibody programs

Key Features of RenMab™

- **Full human heavy chain and kappa light chain V(D)J loci substitution in situ.**

- **Exhibit human-like CDR features and repertoire diversity.**

- **Robust immune response comparable to wild type mice.**

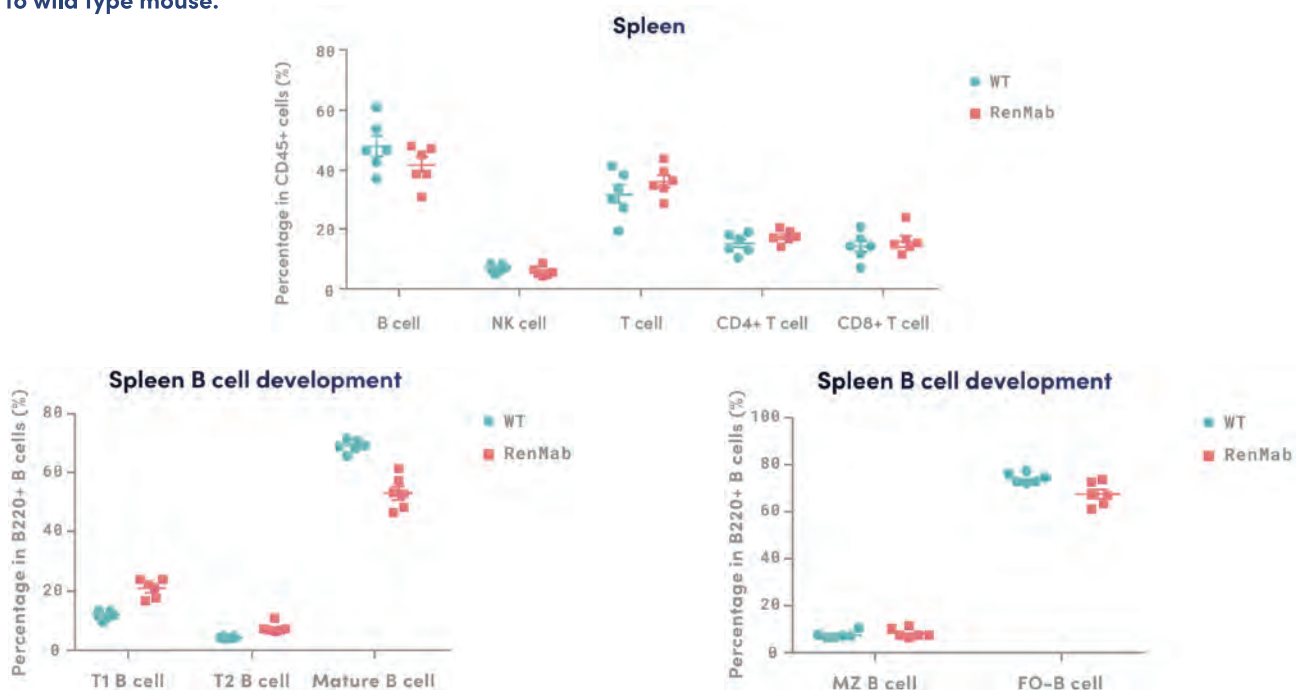- **High binding affinity at subnanomolar range.**
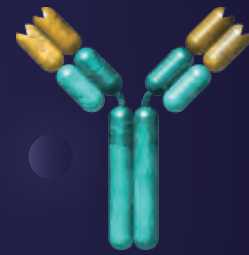
Schematic of humanization in RenMab™ mouse

- Whole mouse variable regions of the heavy and κ light chains are replaced by full human heavy chain VDJ segment and light chain VJ loci *in situ*.
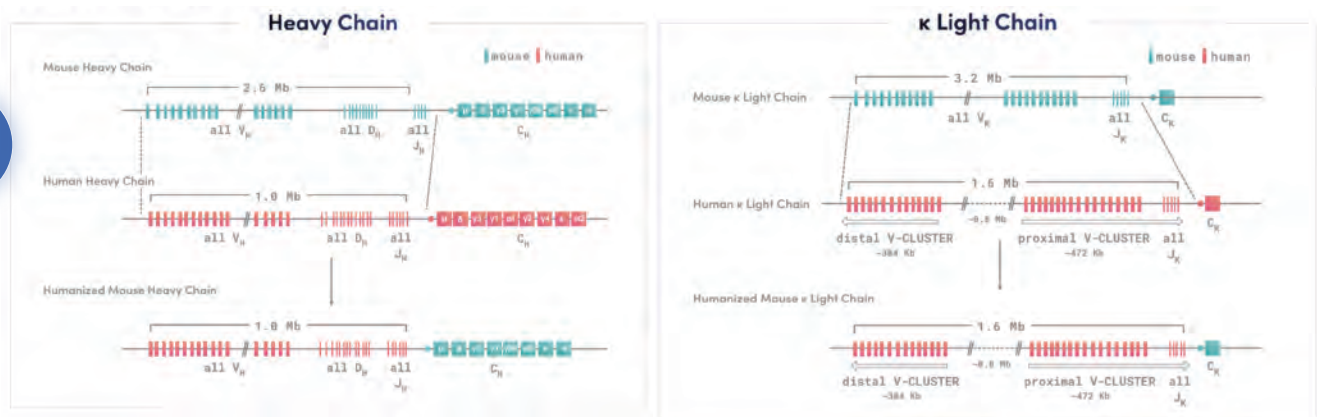
Validation Data

RenMab™ mouse immune cell profiling suggests a comparable immune system to wild type mouse.
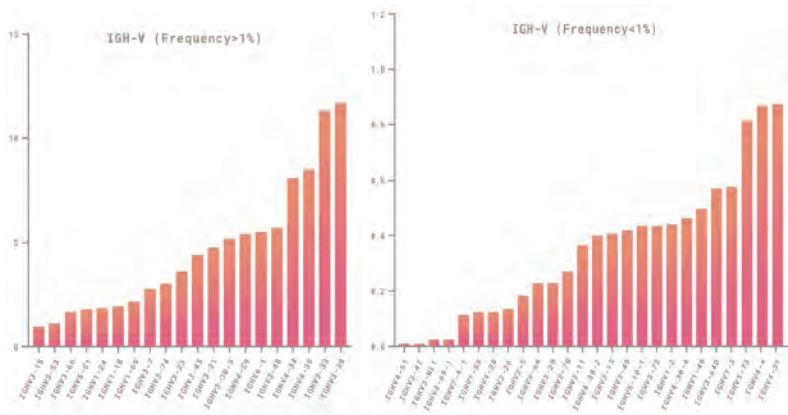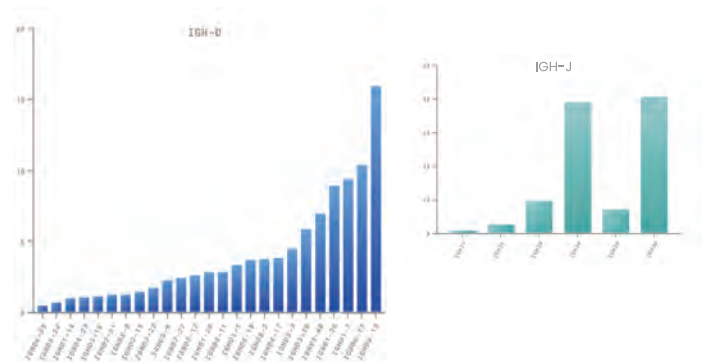
RenMab™

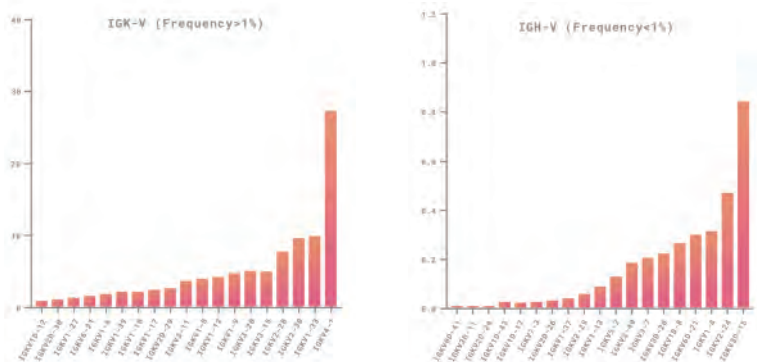## IGHV, IGHD and IGHJ germline usage of naïve RenMab™ mice

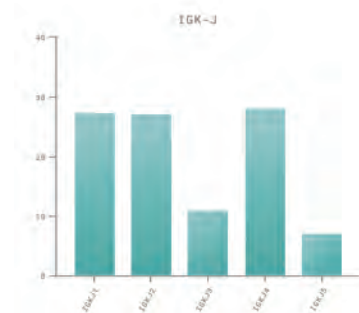A. RenMab™ Naïve Mouse Heavy Chain IGHV Germline Usage

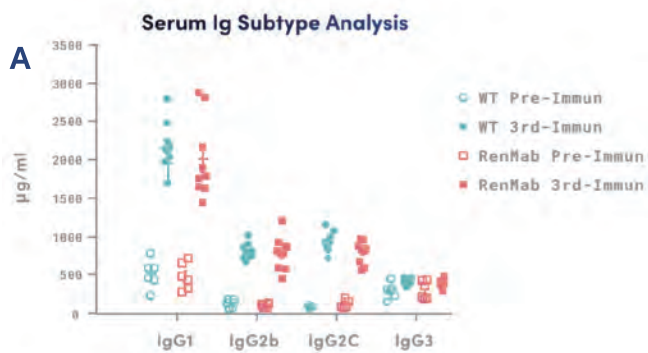B. RenMab™ Naïve Mouse Heavy Chain IGHD & IGHJ Germline Usage

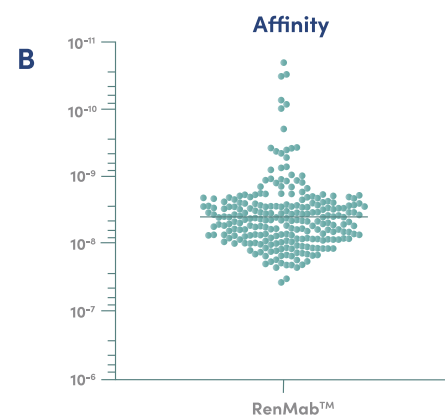C. RenMab™ Naïve Mouse Kappa Light Chain IGKV Germline Usage

D. RenMab™ Naïve Mouse Kappa Light Chain IGKJ Germline Usage

RenMab™ mice exhibit robust immune response and generate fully human antibodies with high affinity

A. No significant differences in serum level of IgG subtypes were observed in RenMab™ mice versus wildtype C57BL/6 mice before and after immunization.
B. Affinity range (geometric mean of KD (M) shown) of RenMab™ generated antibodies for a particular campaign, which includes a number high affinity clones.

Key Features of RenLite®

- **Common single human light chain designed for bispecific or multispecific antibody discovery**

- **Robust immune response comparable to wild type mice.**

- **Diversified heavy chain repertoire similar to that of humans.**

- **High binding affinity at subnanomolar range.**

## Schematic of humanization in RenLite® mouse

- Heavy chain: whole mouse heavy chain VDJ genes were replaced with full human heavy chain VDJ loci *in situ*.

- Light chain: whole mouse light chain VJ loci was replaced with single human KV and KJ gene *in situ*.
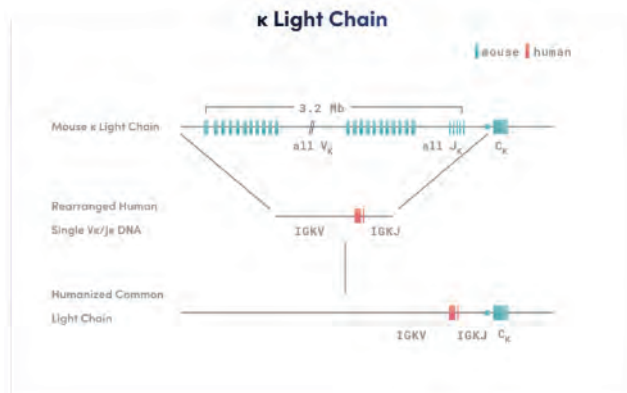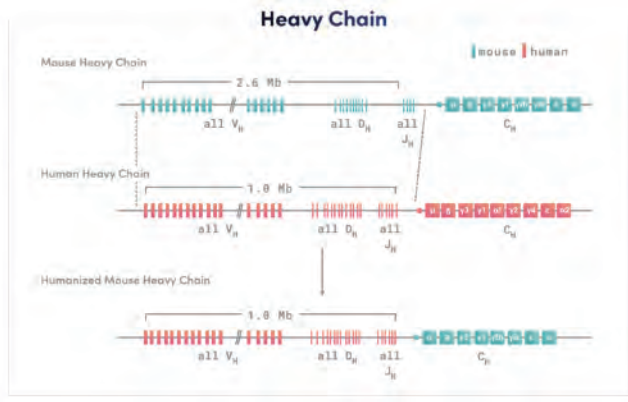

Validation Data

RenLite® mouse shows similar immune profile as wild type mouse

A. Comparison of immune cell population in spleen between RenLite® and wild type mice

B. Serum immunoglobulin isotype and IgG subtype analysis
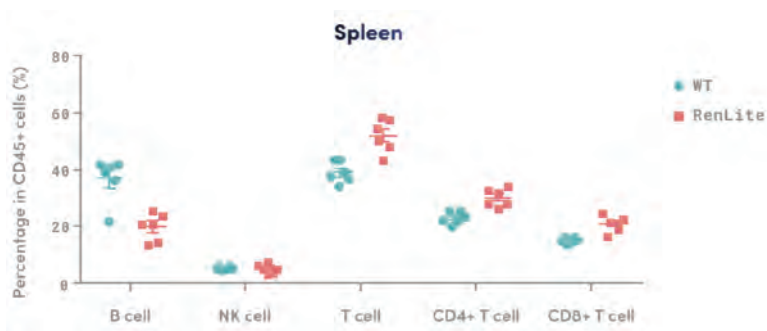
- The percentage of B cells in the spleen of RenLite® mice is slightly lower than wild type mice. This is mainly due to the limited light chain choice during the B cell maturation. When the heavy chain does not pair with fixed light chain efficiently, the B cells do not mature properly.
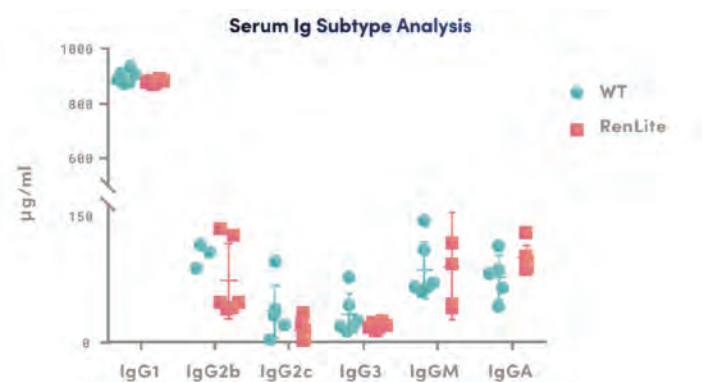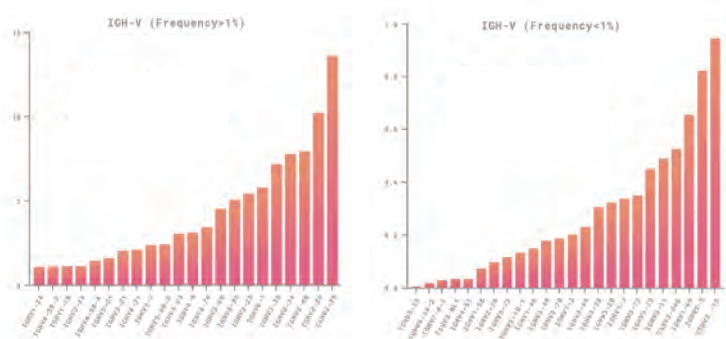
- Serum concentrations of IgA, IgM and IgG subtypes of RenLite® and wild type mice were measured by ELISA. Sera were equally diluted between two groups of mice.
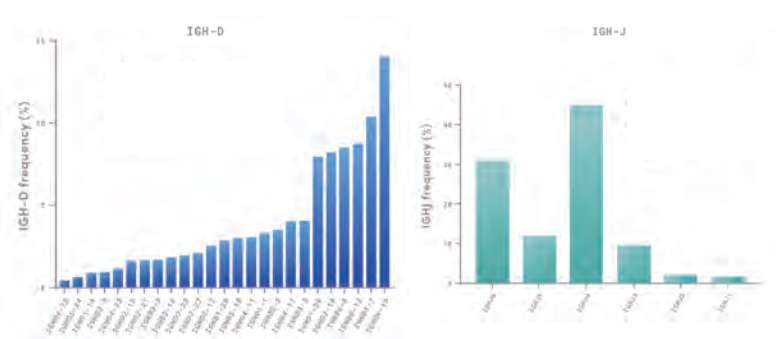
RenLite®

Heavy chain IGHV, IGHD and IGHJ germline usage of naïve RenLite® mice
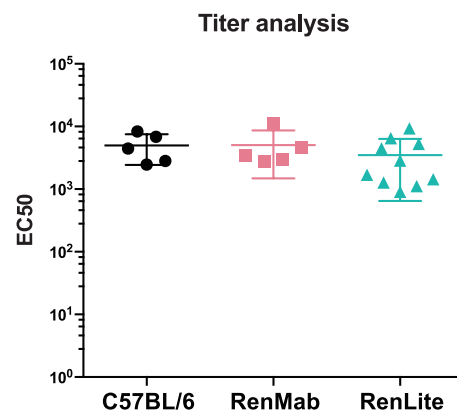
A. Heavy chain IGHV germline usage of naïve RenLite™ mouse

B. Heavy chain IGHD & IGHJ germline usage of naïve RenLite® mouse

RenMice® Case Studies

Robust titers are generated in both RenLite® and RenMab™ mice

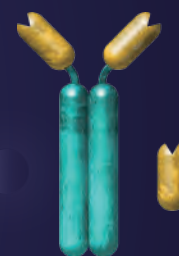C57BL/6 mice

RenMab mice

RenLite mice

Titer analysis
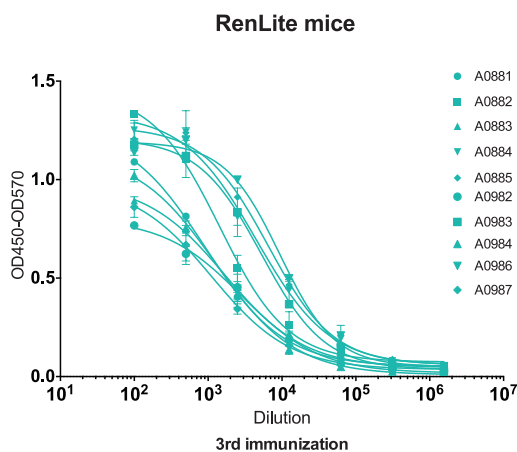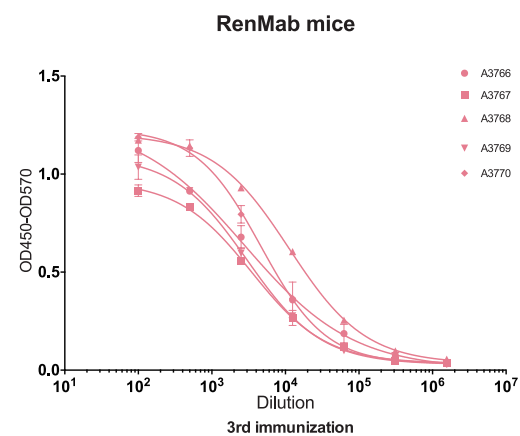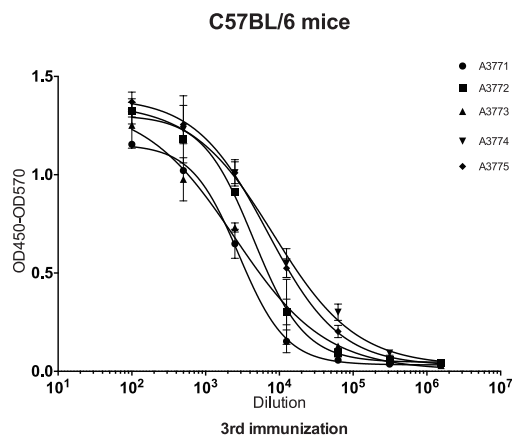
20 mice (5 C57BL/6, 5 RenMab™, 5 RenLite®) were immunized with the same antigen. Titers were measured after the third immunization. EC50 analyses were similar across the strains, with a broader range observed in RenLite® mice.
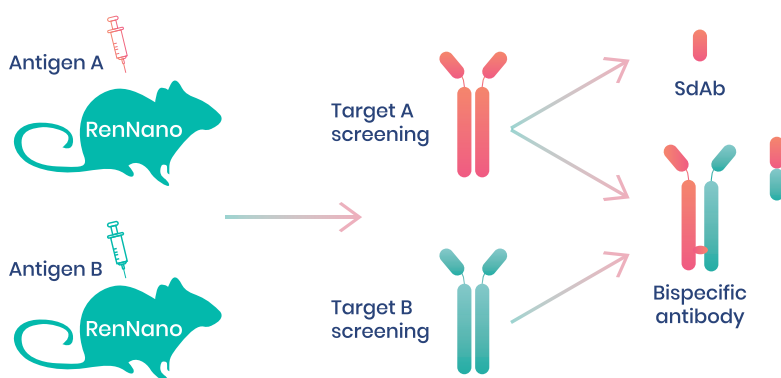
RenNano®

Heavy chain only antibody (HCAb) & nanobody discovery platform

Fully human heavy chain VDJ loci substitution with modified constant regions

Advantages

Antigen A

RenNano

Target A screening

SdAb

Antigen B

RenNano

Target B screening

Bispecific antibody

> Recognizing hidden epitopes
> Good hydrophilicity and penetration ability
> Robust immune response
> Diversified heavy chain repertoire
> High binding affinity at nanomolar range

Nano 100 Project

The "Nano 100 Project" aims to develop fully human nanobody drugs using RenNano mice for more than 100 targets, including tumor associated antigens (TAAs), GPCRs, immune-checkpoints, cytokines, and factors related to neurological diseases.

Nano 100

RenNano

HcAb/ sdAb

BsAb/ engager

Multi-specific Ab

CAR-T/ CAR-NK

Radionuclide antibodyconjugate (RAC)

Nano-drug
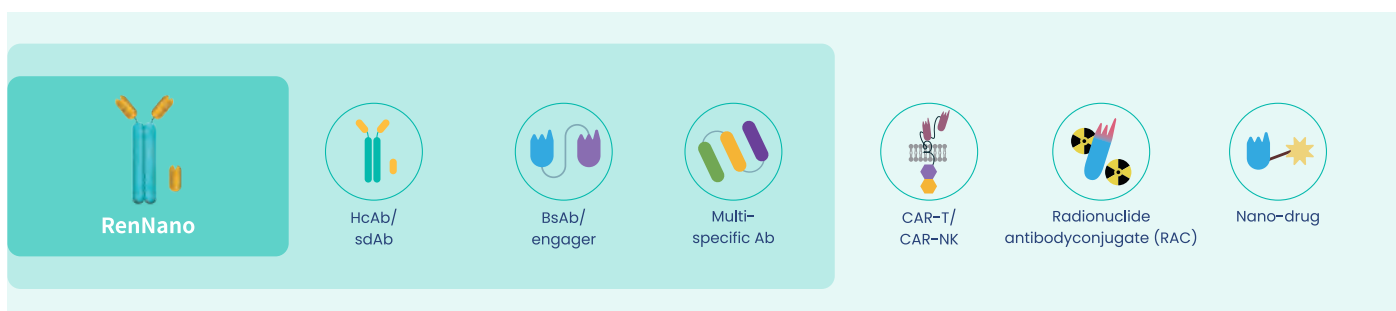
RenNano®: Full human nanobody mouse
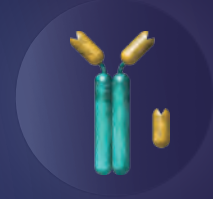
Full human heavy chain variable regions and modified constant regions
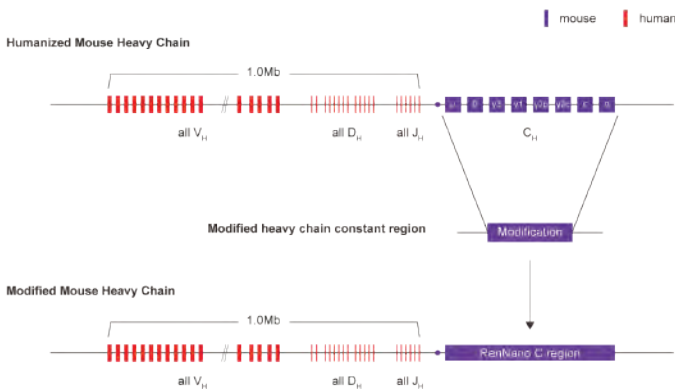

Immune response compared with RenMab mouse
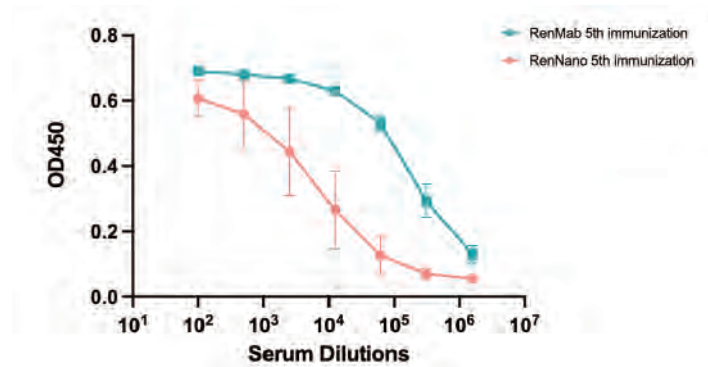
Antigen-specific antibodies discovered from RenNano are highly diverse

CDR3 length

Germline gene usage
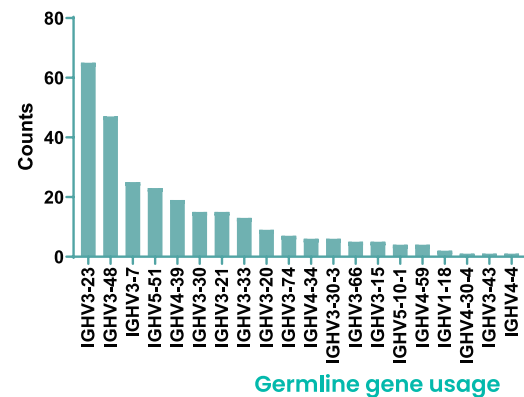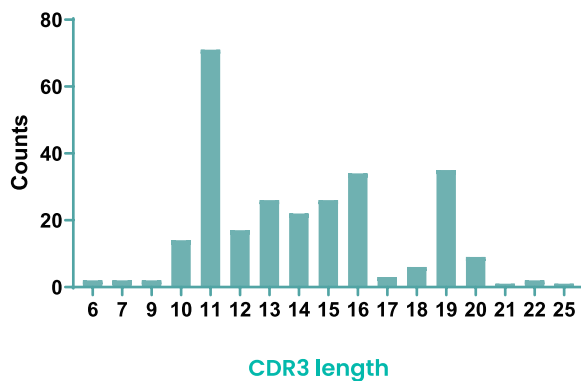
RenNano-derived HCAbs exhibit high binding affinity at nanomolar range
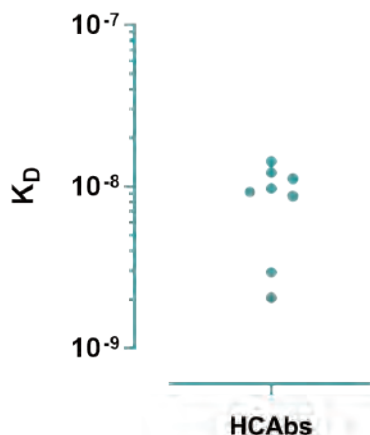
RenNano-derived HCAbs exhibit good developability characteristics

SEC-HPLC

High purity after one-step purification

HIC-HPLC

Superb hydrophily of RenNano HCAbs

RenBiologics
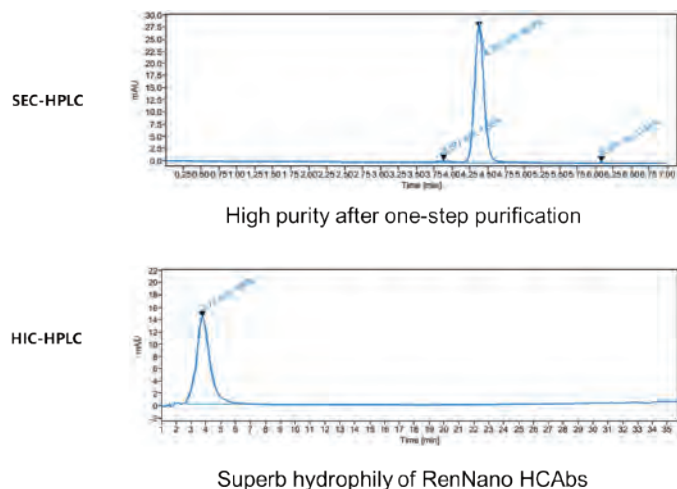
Our fully human antibody library. Your Pipeline.

RenMice®-based Fully human Antibody/TCR Discovery Platforms

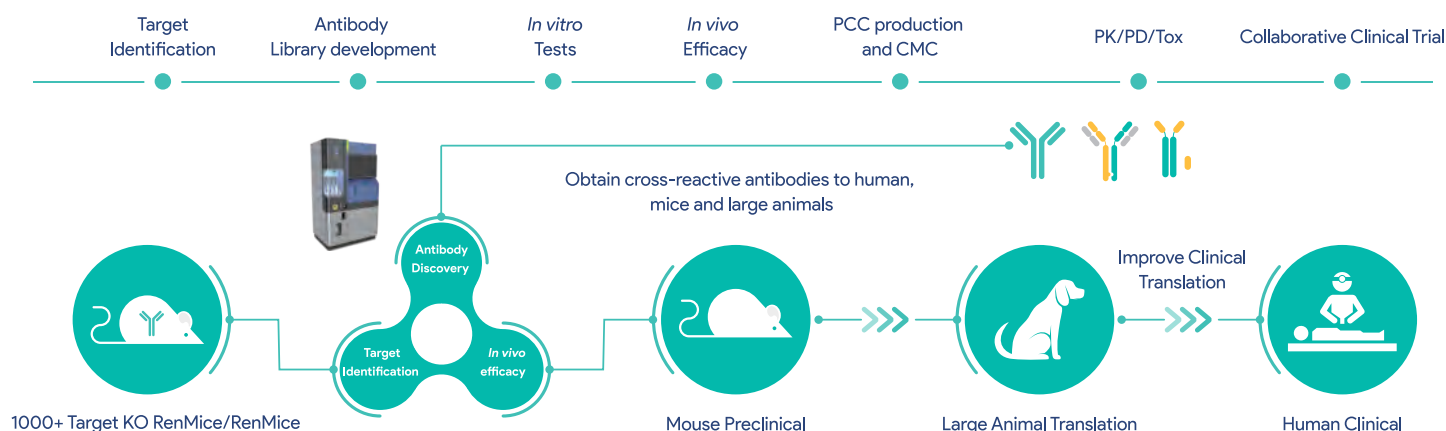| RenMab™	RenLite®	RenLite®	RenNano®	RenTCR™	RenTCR-mimic™	RenMice® KO
mAb platform	BsAb platform	BsADC platform	Nanobody platform	TCR platform	TCR-mimic platform	GPCR platform

hHLA CD8α/β
hTCR
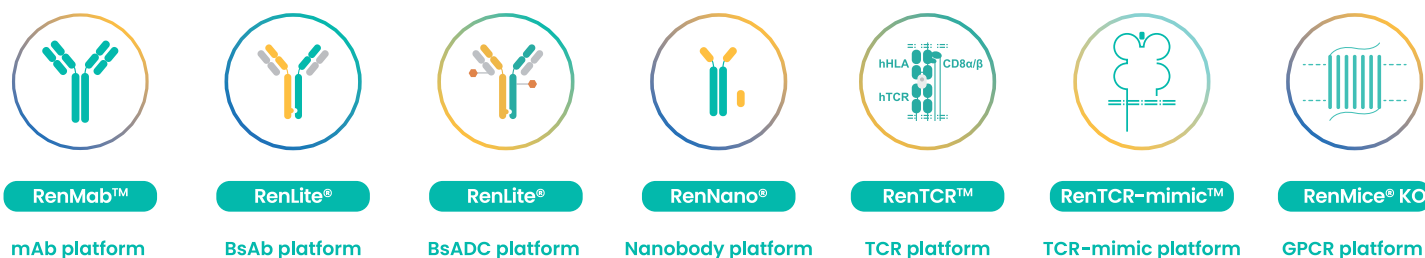
Streamlined Antibody Discovery

Target Identification — Antibody Library development — *In vitro* Tests — *In vivo* Efficacy — PCC production and CMC — PK/PD/Tox — Collaborative Clinical Trial

Obtain cross-reactive antibodies to human, mice and large animals

Antibody Discovery

Target Identification   *In vivo* efficacy

1000+ Target KO RenMice/RenMice

Mouse Preclinical

Improve Clinical Translation

Large Animal Translation

Human Clinical

Therapeutic Antibodies Against 1000+ Targets for Partnerships

400k
Fully-human antibody sequences

40+
PCC

~150
Partnerships

About Biocytogen

Biocytogen (02315.HK) is a global biotechnology company that drives the research and development of novel antibody-based drugs with innovative technologies.

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