

Anti-Globo H mAb and BsAb for Cancer Therapy

Institute of Biologics
Development Center for Biotechnology

Presenter : Jei-Hwa Yu Ph.D.

Development Center for Biotechnology, DCB



400+ 

RD/BD professionals serving as the innovation hub for early drug development.

36 

Founded in 1984, non-profit RD institution subsidized by the Ministry of Economic Affairs of Taiwan.

1200+ 

The premium drug development entity and connected with 1200+ biotech of TW.

25 

20+ out licensed assets and 5 Spin offs under **out-licensing** and **co-development** model.

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Project Team

Project Team

Unmet Need

Technology

Opportunity

IP/Dev Status

Summary/Contact

T **Principal Investigator**   
 Jei-Hwa Yu, Ph.D.

E **Cell Line Dev. & Process Dev.**  
 Shih-Liang Hsiao, MS

A **Protein Characterization**    
 Hsien-Yu Tsai, Ph.D.

M **DMPK**  
 Yen-Ju Hsieh, Ph.D.

Drug Modalities Targeting Globo H

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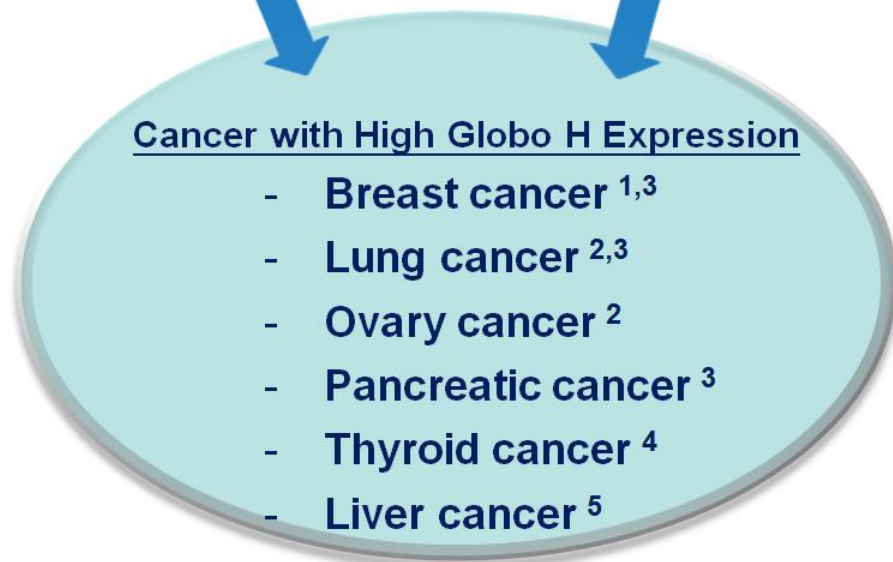
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1. *JBC* (1984) vol. 259, p14773-7.
2. *Int. J. Cancer* (1997) vol. 73, p42-9.
3. *PNAS* (2008) vol. 105, p11667-72.
4. *J. Surg. Oncol.* (2016) vol. 114, p853-8.
5. *Sci. Rep.* (2017) vol. 7, Article No. 10750, p1-13.

Higher Prevalence of Overexpressed Globo H for Breast Cancer Patients

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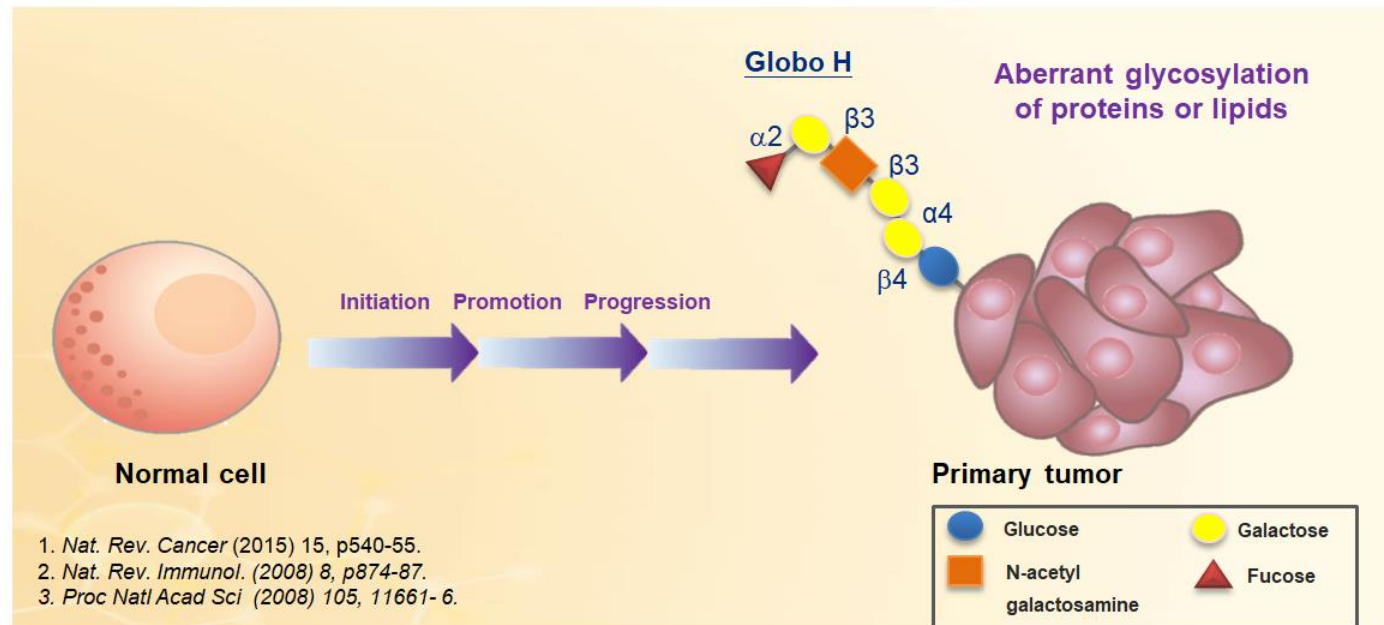
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Subtype	Molecular/genetic characteristics	Prevalence
Luminal A	ER+ and/or PR+, HER2-, low Ki67	40%
Luminal B	ER+ and/or PR+, HER2+	10–20%
HER2-overexpressing (enriched)	ER-, PR-, HER2+	10%
Basal-like (triple-negative)	ER-, PR-, HER2-	10–20%

The prevalence of overexpressed Globo H is higher than that of HER2 for breast cancer patients.

Glycan and population	No. of patients	Positive		
		No.	Range*	% of total
Globo H				
→ Entire	41	25	14.3–75.2	61.0
Non-BCSCs	41	25	24.4–79.2	61.0
BCSCs	40 [†]	8	9.7–71.0	20.0

Proc Natl Acad Sci U S A. (2008) vol. 105: p11667–11672.

Expression of Globo H on Different Breast Cancer Cell Lines

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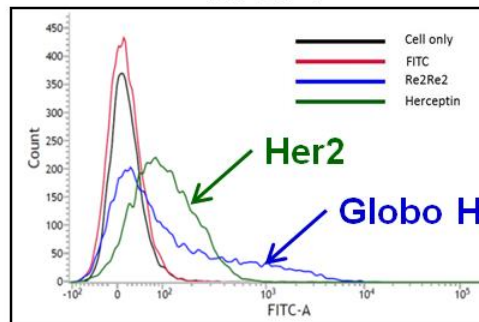
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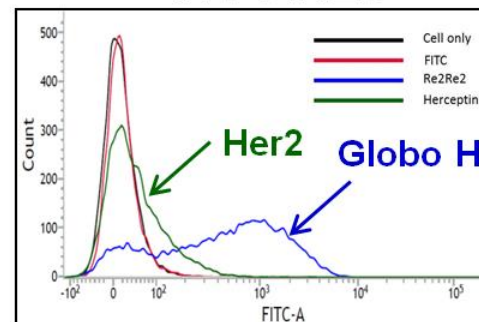
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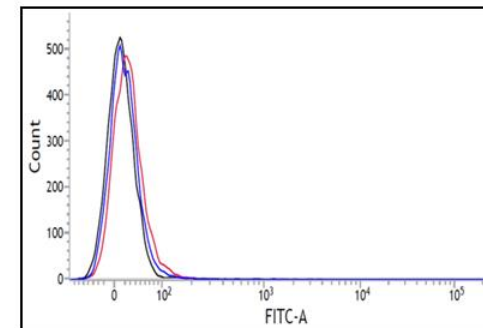
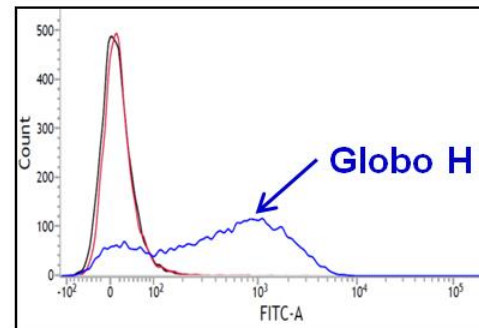
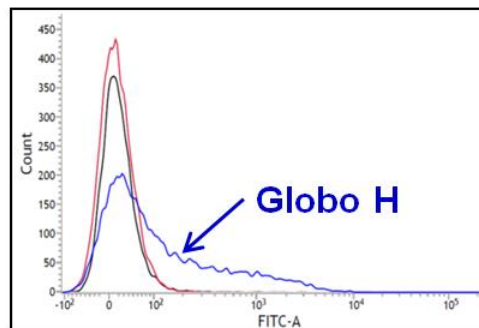
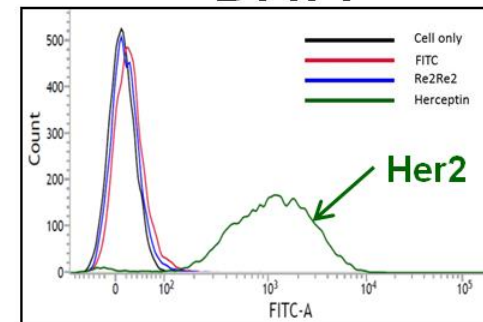
MCF7



HCC1428



BT474



Globo H (+)

Globo H (+)

Globo H (-)

HER2 (+)

HER2 (+)

HER2 (+++)

Globo H Is Required for the Antibody-mediated Cell Cytotoxicity of Humanized Anti-Globo H Ab



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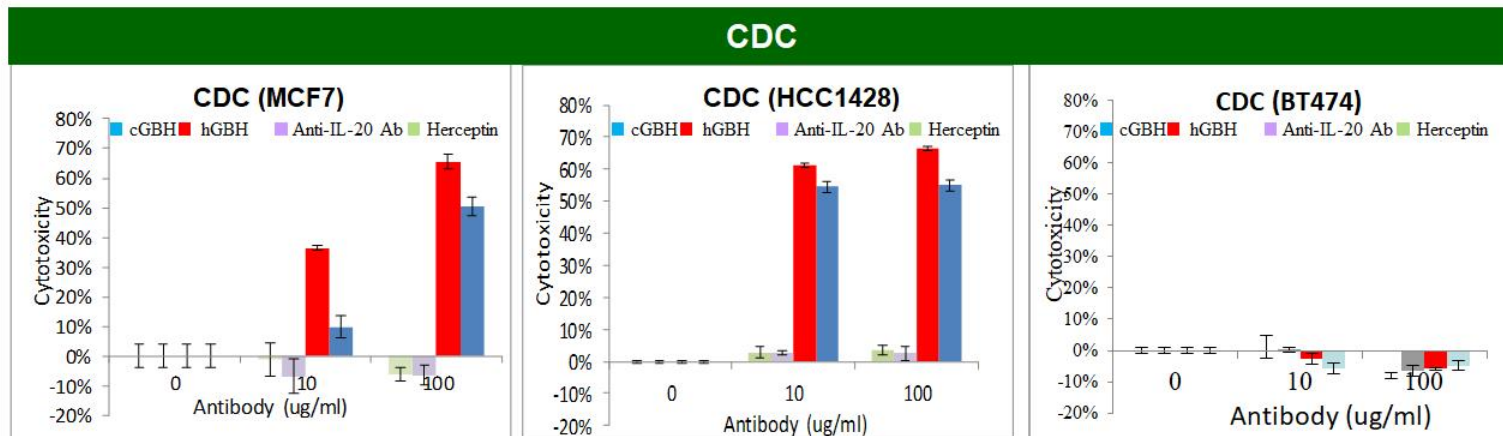
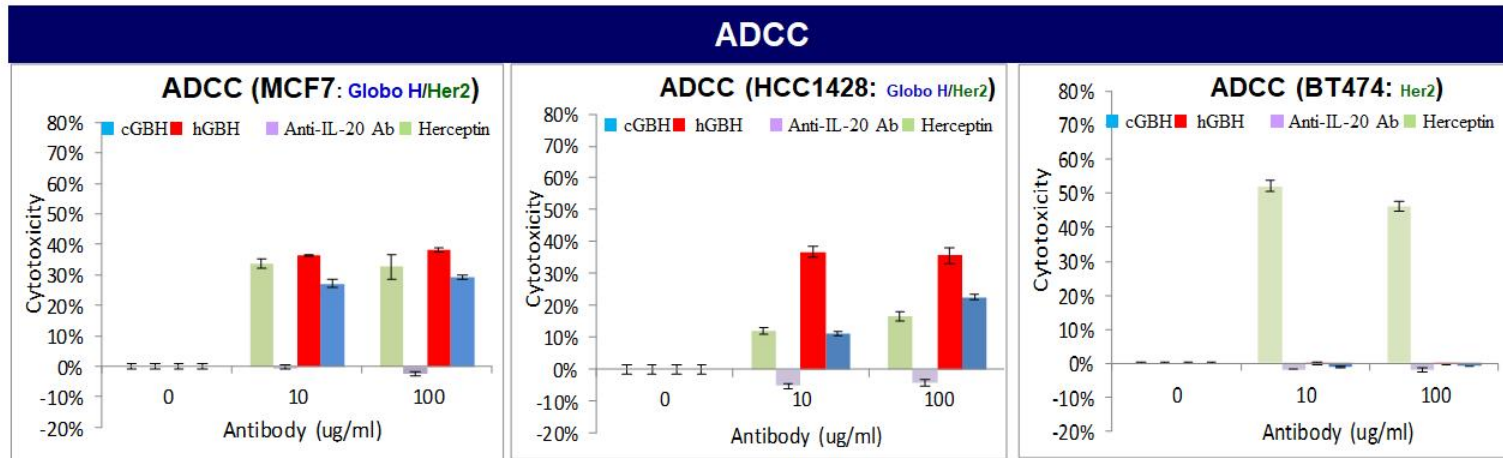
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Inhibition of Anti-Globo H mAb-mediated Cell Cytotoxicity by Synthetic Globo H

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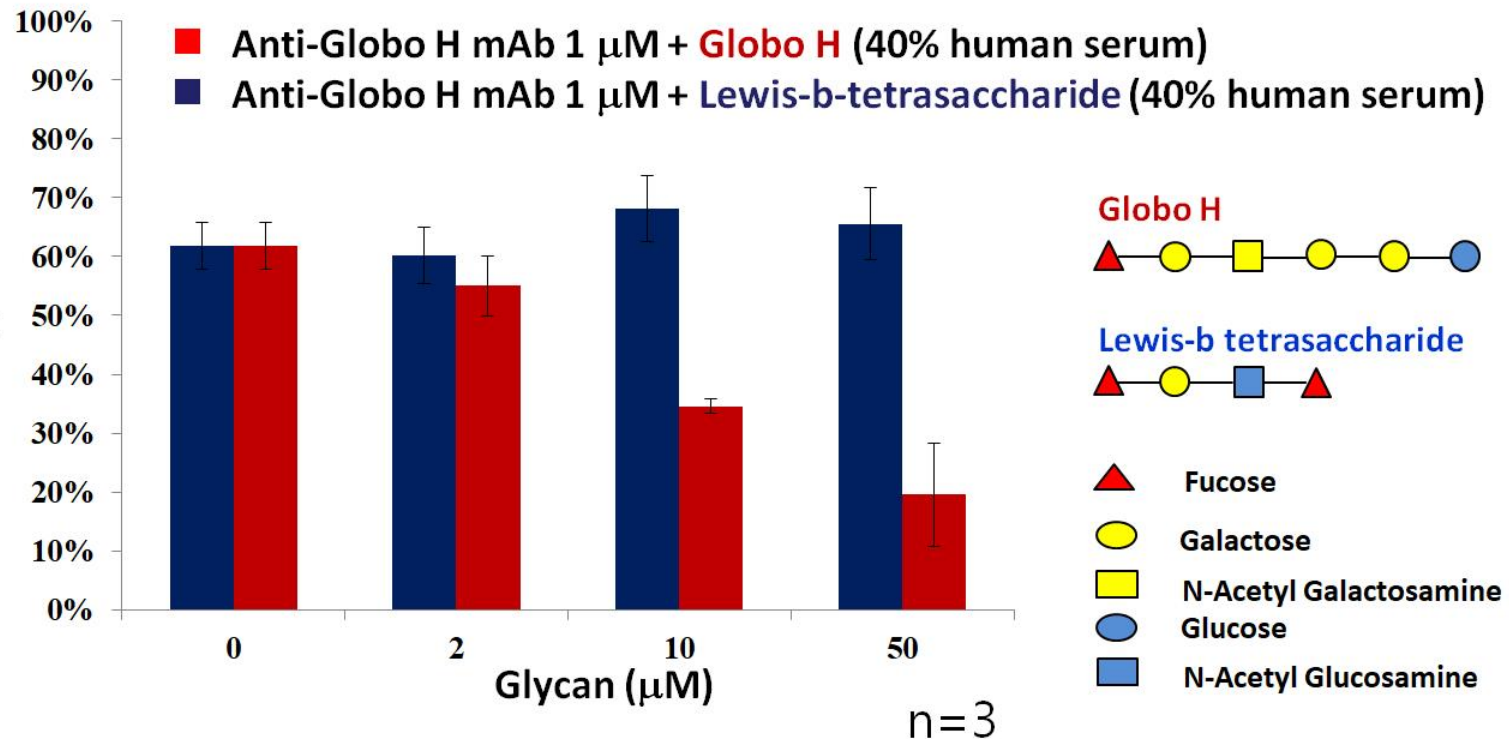
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Therapeutic Effect of Anti-Globo H mAb(DCBPR1101) in HCC1428 Xenograft Mice

HCC1428 breast cancer cells xenograft animal model in female NOD/SCID mice

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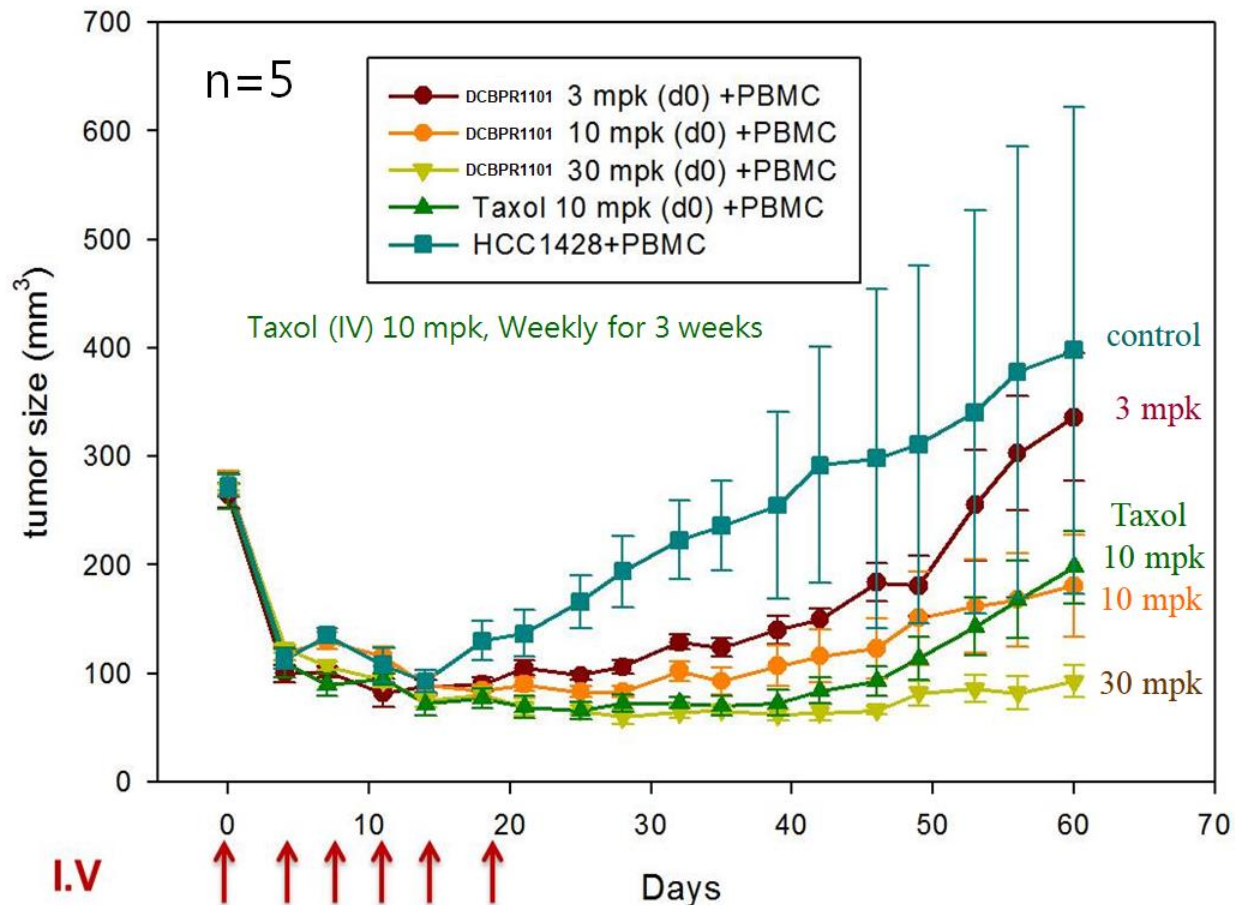
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Mechanism of Action- Globo H BsAb

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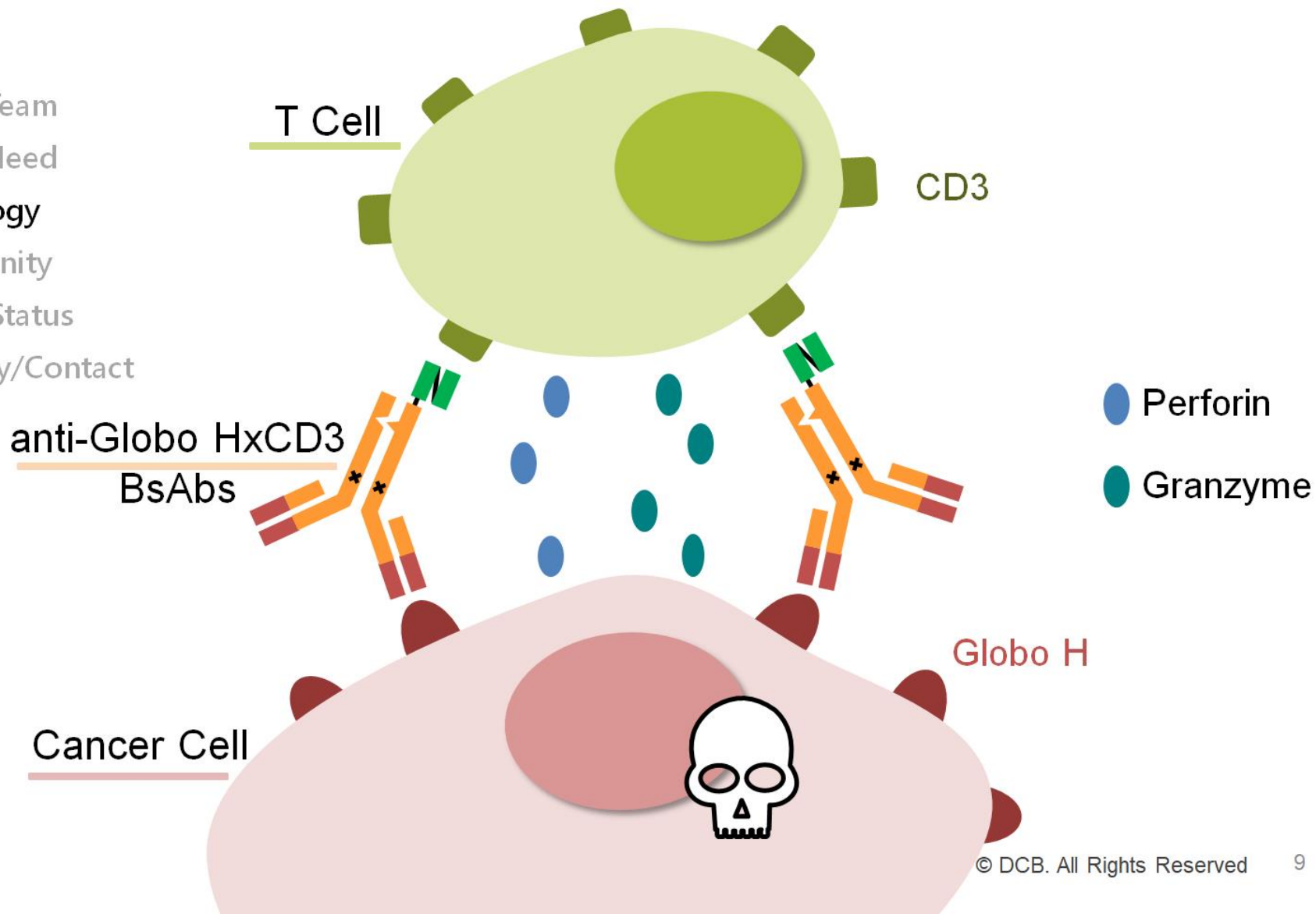
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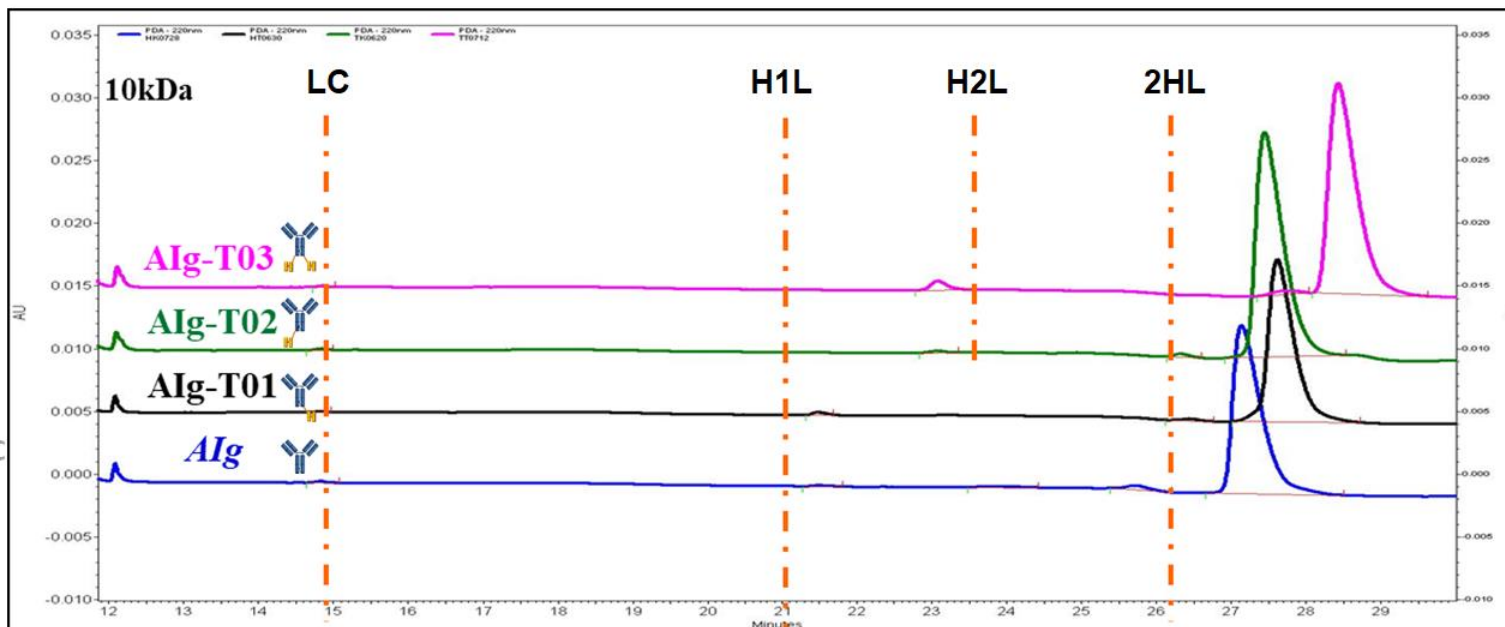
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Purity & Heterogeneity Analysis of Globo H BsAbs by Non-Reduced CE-SDS



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No.	Sample	LC	HC	H+L	2H	2H1L	NG	Intact
1	Asymmetric IgG (Alg)	0.38% (14.817)	--	0.36% (21.483)	0.55% (23.958)	2.12% (25.708)	--	96.59% (27.133)
2	Asymmetric IgG-T01 (Alg-T01)	0.22%	--	0.78% (21.475)	--	0.81% (26.433)	--	98.19% (27.617)
3	Asymmetric IgG-T02 (Alg-T02)	0.26%	--	0.42% (23.075)	--	0.75%	--	98.57% (27.422)
4	Asymmetric IgG-T03 (Alg-T03)	0.20% (14.858)	--	2.48% (23.083)	--	1.51% (27.817)	--	95.81% (28.425)

Target-dependent T Cell Activation - Anti-Globo HxCD3 BsAb

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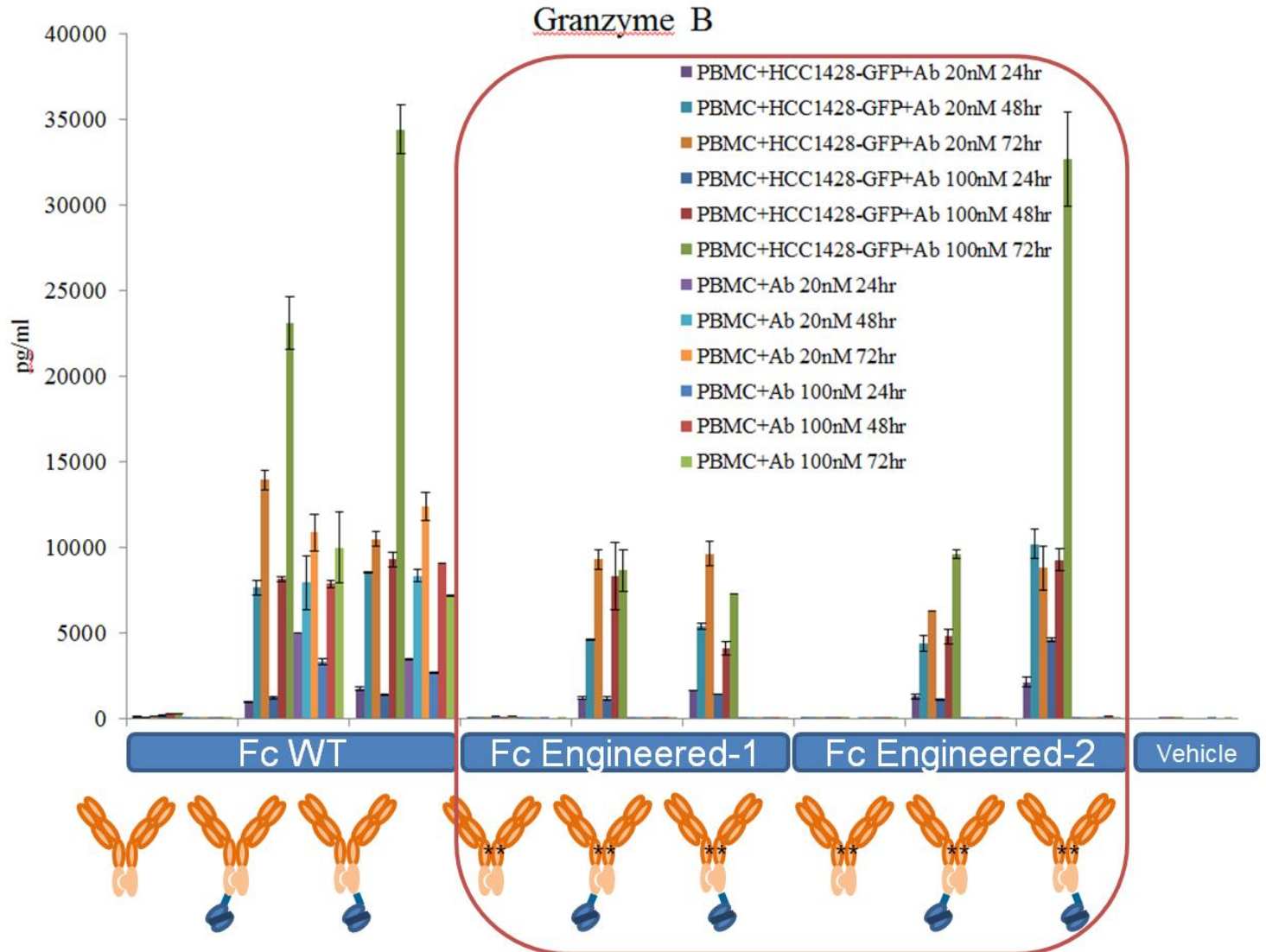
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Therapeutic Effect of Anti-Globo HxCD3 BsAb in HCC1428 Xenograft Mice



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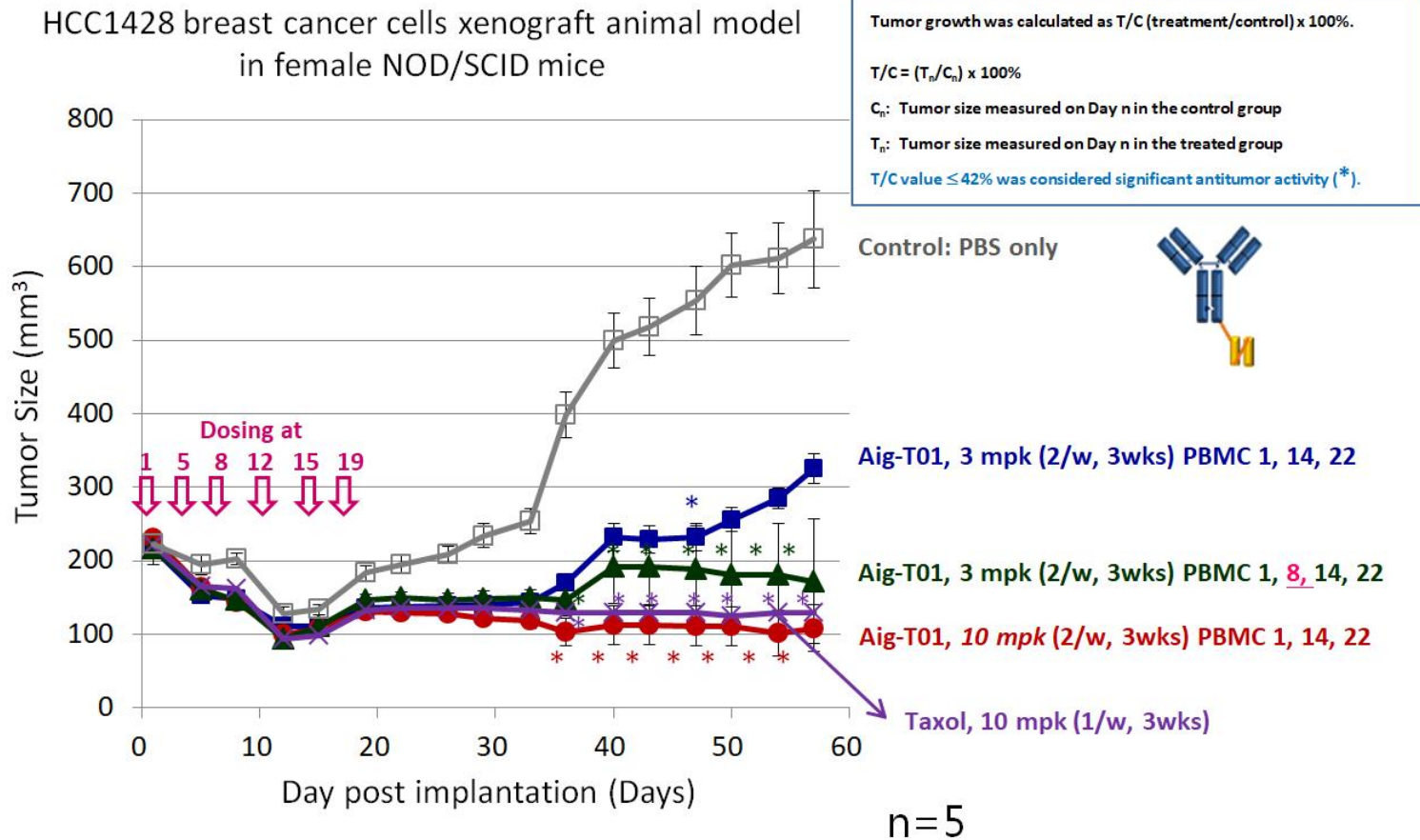
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Possibility, Status, and Strategy

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IP

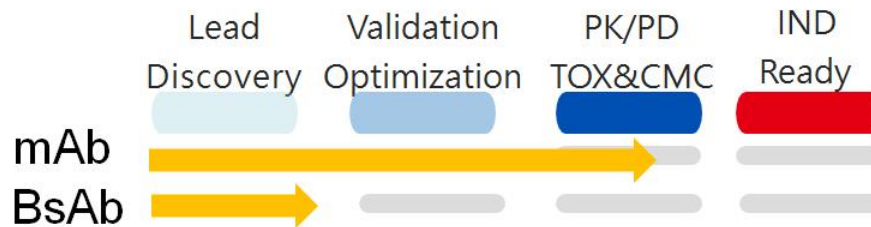
mAb: PCT (2018), US (2018), and TW (2018) Patents Applied

BsAb: PCT (2018), US (2018), and TW (2018) Patents Applied

Partnership

Exclusive Licensing

Development status



Expect in the Future

- Efficacy examination in the PDX model

Summary and Contact

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Anti-Globo H mAb

- Therapeutics for Globo H⁺ cancers
- Higher patient population in breast cancer (61%)
- Anti-cancer efficacy demonstrated in breast cancer animal model through ADCC and CDC.

Anti-Globo H BsAb

- High correct pairing (>95%)
- Target cell-dependent T cell activation (Better safety profile)
- Anti-cancer efficacy demonstrated in breast cancer animal model through T cell-mediated cytotoxicity.

BD Contact

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Thank you for your attention



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