3. Meditope Technology

(City of Hope)

5TH KDDF GLOBAL C&D TECH FAIR

Asset Overview

Product Type	Peptide
Disease Area	Oncology
Indication	Ovarian cancer
Current Stage	Lead Optimization
Target	EGFR/HER3, CDH6, or CD33
MoA	The end of the T cell receptor that functions as the (bicycle) rack
Brief Description	• Monoclonal antibodies (mAbs) have exceptional specificity and favorable pharmacology therefore, substantial efforts have been made to functionalize them, either with potent cytotoxins, biologics, radionuclides, or fluorescent groups for therapeutic benefit and/or use as theranostic agents. • To exploit the discovered meditope–Fab interaction as an alternative means to efficiently functionalize mAbs, inventors used insights from the structure to enhance the affinity and lifetime of the interaction by four orders of magnitude. • To further extend the lifetime of the complex, inventors created a mechanical bond by incorporating an azide on the meditope, threading the azide through the Fab, and using click chemistry to add a steric group. The mechanically interlocked, meditope–Fab complex retains antigen specificity and is capable of imaging tumors in mice. • These results indicate it is possible to "snap" functionality onto mAbs, opening the possibility of rapidly creating unique combinations of mAbs with an array of cytotoxins, biologics, and imaging agents.
Intellectual Property	WO 2019134001 A1
Publication	Mechanically interlocked functionalization of monoclonal antibodies, Nat Comm. (2018) Template-Catalyzed, Disulfide Conjugation of Monoclonal Antibodies Using a Natural Amino Acid Tag, Bioconj. Chem (2018)
Inventors	Christine Brown, John Williams

Highlights

Meditope Technology: Last piece of real estate on mAbs

- Meditope is a cyclic, twelve amino acid peptide that binds with high affinity to a hole, engineered with unique residues, within a Fab. This unique 'receptor/ligand' pair can be used to couple functionality to mAbs. This meditope is genetically engineered to sit at the end of the T cell receptor that functions as the (bicycle) rack to accommodate multiple "bicycles" = antibodies that provide the target versatility in this approach.
- Replace scFv with a meditope peptide addresses a number of unmet needs: 1) Antigen escape, 2) Polyclonal response, 3) Safety switch, 4) Allogenic approach, 5) Logic switches

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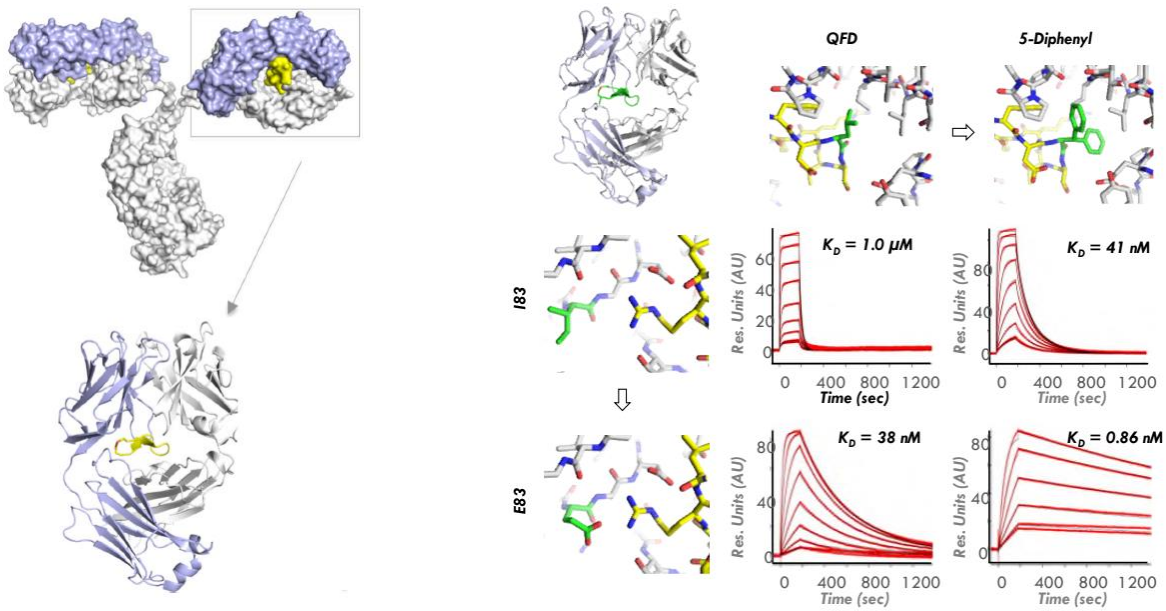
Key Data

Schematics of the Meditope Technology



Ovarian Cancer: FabRack-mediated significant survival improvement