



INNOVATION WORKS®

Technology from the European Molecular Biology Laboratory

ProTAG – a new protein engineering technology for research, therapy and diagnosis

Challenge

- many of the currently existing protein labeling methods (e.g. for research) suffer from drawbacks regarding size or placement of modification, ease of usability, tag exchangeability, or general scope
- many diseases have no potent cure and/or diagnostics – antibodies could help but often require advanced engineering which cannot be achieved by current technological means

Commercial Opportunity

- Research: protein labeling kits for studying proteins, e.g. by fluorescence microscopy
- Therapy: antibody-drug and antibody-radionuclid conjugates (ADC, ARC)
- Diagnosis: antibody-based nuclear imaging diagnostics
- Others: e.g. tissue staining for surgery, protein coating of surfaces

Technology

- Incorporation of unnatural amino acids (UAAs) into proteins and subsequent click chemistry labeling
- Strengths: site-specificity, speed / robustness / completeness of coupling, versatility / modularity of platform, easy applicability, and free choice of modification placement
- Selected modes of applications: administering pre-labeled proteins/antibodies to cells/patients, in vivo protein labeling in cells/animals, antibody accumulation followed by in vivo labeling in cells/patients, drug release
- Ready to use-toolbox: UAAs, tags, expression system plasmids, control proteins, protocols
- Academic proof of concept: successful production of herceptin-doxorubicin ADC using ProTAG which showed higher cytotoxicity than native antibody

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Intellectual Property

EP2670767 (granted 2015), EP14151175.8 (filed 2014, pending), EP15197057.1 (filed 2015, pending), EP16194038.2 (filed 2016, pending), additional patent applications in preparation



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