【主催】
大阪大学生物工学国際交流センター

# PROTEIN SUPERGLUES TO CONTROL CELLS AND PROTECT FROM OUTBREAK THREATS

PROFESSOR MARK HOWARTH,
UNIVERSITY OF CAMBRIDGE
(SPY TAG/SPY CHATCHER 開発者 )

2025 14:30-15:30

## APR.8 (TUE.)

ENGLISH ONLY

参加費
無料

**開催方式**

対面形式（英語のみ）

**開催場所**

大阪大学大学院工学研究科
サントリー記念館（C3 棟）
5 階メモリアルホール

**事前予約不要**

Many properties of antibodies and other binding proteins are limited by dissociation. A special feature of the bacterium Streptococcus pyogenes enables spontaneous locking together of its surface proteins. Our lab re-engineered this system to generate an irreversible peptide-protein interaction (SpyTag/SpyCatcher). This superglue is genetically-encodable and specific in diverse biological environments. We accelerated reactivity to the diffusion limit and generated variants switchable by light, pH or temperature. SpyTag allows rapid reformatting of antibodies with reporters or effector molecules. SpyTag and its related superglue SnoopTag allow programmable synthesis of antibody/nanobody teams for multiplex control of cell signaling. SpyTag also enables simple reformatting of CAR-T cells, virus-like particles for vaccination, or viral vectors. We have developed an independent bacterial superglue called NeissLock for covalent reaction to unmodified human proteins via an anhydride. Applications will be discussed towards cell therapy and for broad protection against long-standing vaccine challenges and emerging pandemic threats. Mark is also keen to strengthen the scientific links to Japan for Cambridge and the UK more generally.

【協賛】 GteX 革新的 GX 技術創出事業・微生物中核チーム
大阪大学大学院工学研究科テクノアリーナ・生体バイオグループ
大阪大学先導的学際研究機構産業バイオイニシアティブ研究部門