

私立大学戦略的研究基盤形成
支援事業「タンパク質の生成
と管理」第1回セミナー



第7回
生命科学
セミナー

演題: Encounters of the nascent peptide
and macrolide antibiotics in the exit
tunnel of the ribosome

演者: Prof. Alexander Mankin
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要旨: Macrolide antibiotics, such as erythromycin and its derivatives, inhibit bacterial growth by binding in the nascent peptide exit tunnel of the ribosome and interfering with protein synthesis. These drugs are thought to inhibit translation of all the proteins at the early rounds of elongation when the nascent peptide is still very short. In contrast to these commonly accepted view, we found that when sensitive bacteria are exposed to even very high concentrations of macrolides, synthesis of specific proteins continues essentially at the normal level. Some of the proteins that escape drug action in vivo, show high resistance to macrolide inhibition when synthesized in a cell-free translation system. Such ability to escape macrolide action resides in the protein's N-terminus. Specific N-terminal sequences allow the nascent polypeptide to sneak through the ribosome exit tunnel obstructed by the antibiotic molecule. Specific amino acid sequences located far away from the protein's N-terminus may account for 'late' ribosome stalling during synthesis of such 'sneaky' polypeptides. The observation that synthesis of some cellular proteins continues in the presence of macrolides provides new venues for modulation of protein synthesis and improvement of macrolide antibiotics.

リボソームに対する、抗生物質と合成途上鎖作用を巡る翻訳制御の話です。

日時: 2011年12月12日(月)
午後4時30分～5時30分

場所: 15号館1階 15102セミナー室

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共催: 京都産業大学総合生命科学部
私立大学戦略的研究基盤形成支援事業「タンパク質の生成と管理」