生物化学セミナー　総合生命科学部 生命科学セミナー

演　題：Protein Import into Peroxisomes

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The peroxisomal protein import machinery differs fundamentally from most other translocons as it allows the membrane passage of folded, even oligomerized proteins. Posttranslational matrix protein import into peroxisomes uses either one of the two peroxisomal targeting signals, PTS1 and PTS2. The cycling receptors shuttle between the cytosol and peroxisomal lumen, recognize and bind the peroxisomal targeting signals (PTS) of their cargo proteins in the cytosol and target them to a docking- and translocation-machinery at the peroxisomal membrane. At the membrane, the PTS1-receptor Pex5p together with its docking partner Pex14p forms a gated ion-conducting channel for the transport of PTS1-proteins and the cargo proteins are released into the peroxisomal lumen. In the following, import receptors are ubiquitinated and released from the membrane in an ATP-dependent manner. Components of the ubiquitination cascade as well as the AAA-peroxins are central components of an export machinery, which is responsible for the ATP-dependent release of the import receptors to the cytosol at the end of the receptor cycle. Here I will report on dissection of steps in peroxisomal protein import with emphasis on the structure and function of the AAA-peroxins as well as alternative protein import pathways into peroxisomes.
Glycosomes represent a subclass of peroxisomes that are essential for survival of protozoan parasites of the family Trypanosomatidae. These parasites infect humans as well as livestock and cause devastating diseases like sleeping sickness and Chagas disease. Hence, disruption of glycosome biogenesis is an attractive drug target for these Neglected Tropical Diseases (NTDs). Here we report on the identification of inhibitors of early steps of protein import into glycosomes.

日　時：2016年9月9日（金）16 時～17 時

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世話人：京都産業大学総合生命科学部　遠藤　斗志也
共催　：JSPS 科研費 15H05705「ミトコンドリア生合成を司る細胞内統合的ネットワークの解明」