第 2 回蛋白研コロキウム

日時：平成 25 年 6 月 26 日（水）12 時～13 時半

（*Sunny Side* 製サンドイッチ、コーヒー・紅茶を用意します。数に限りがありますので不足の場合はご容赦ください）

場所：蛋白質研究所 1F 講堂

Host: Akira Shinohara

Lecturer： Yin-Chang Liu, Visiting Scholar from Institute of Molecular Medicine, National Tsing-Hua University, Hsin-Chu, Taiwan

蛋白質研究所長　長谷俊治

(世話人：高尾敏文)

”Personal research experiences about (1) Direct Involvement of Tumor Suppressor p53 in Nucleotide Excision Repair, and (2) Role of PCNA in Base Excision Repair”

Tumor suppressor p53 functions primarily as transcription regulator of many genes involving apoptosis, cell cycle arrest and DNA repair. Previous studies have indicated that p53 may enhance nucleotide excision repair (NER) via transcription-independent manner. NER consists of a series of sequential events including recognition and demarcation of the damage site, excision of oligonucleotide with the damage site, gap-filling and ligation. Using UVC-irradiation as damaging agent, we have collected evidence for that p53 may participate in NER by facilitating the recruitment of repair proteins such as XPB/XPD, the helicase components of TFIIH complex to the damage site. The region of p53 interacts with XPB has been mapped to amino acid residues 299-308, which contain no specific secondary structure. The region-derived peptide is capable to prevent the interaction between p53 and XPB, and inhibit the incision activity. While focusing on NER, we in serendipity found that the gap-filling step of NER was delayed by various chemicals including amoxicillin, colcemid and flavonoids. The delay effect can be correlated to the oxidative-stress inducing capacity of the chemicals and is linked to the effect of base excision repair (BER). The phenomenon is considered to be a competition between two excision repair mechanisms for common machineries for DNA repair synthesis. Overexpression of PCNA, the sliding clamp of DNA polymerase, attenuated the delay effect. Further experiments suggest that PCNA facilitates repair of oxidative DNA damage, probably by acting as a scaffold for both DNA replication and BER complexes. This study revises the general image about the restricted role of PCNA in long-patch subpathway of BER.