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～Histone demethylase JMJD2B/KDM4B functions as a co-factor of estrogen receptor～

Estrogen is a key regulator of normal function of female reproductive system and plays a pivotal role in the development and progression of breast cancer. The estrogen signaling pathway is a reliable therapeutic target for estrogen-receptor (ER) positive subtype of breast cancer. Nowadays, understanding of how ER regulates transcription is key to overcoming resistance to existing selective ER modulators (SERMs) and identifying novel therapeutic targets. Prof. Okada introduced their research that will largely contribute to find out a potential therapeutic target in breast cancer. He demonstrated that JMJD2B (also known as KDM4B) constitutes a key component of the estrogen signaling pathway. JMJD2B is expressed in a high proportion of human breast tumors, and that expression levels significantly correlate with ER positively. In addition, 17-beta-estradiol (E2) induces JMJD2B expression in an ERα dependent manner. JMJD2B is recruited to ERα target sites, demethylates H3K9me3 and facilitates transcription of ER positive genes. It's very important process because of that abnormal methylation of histones by methyltransferases have been implicated in various cancers. Finally, Prof. Okada mentioned that the intensive studies of how nuclear receptors transmit ligand binding signals have identified several distinct multiprotein complexes. We all devoutly hope that these explorations will eventually identify therapeutic targets and prognostic markers for human cancers.

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参加者の感想

ER（エストロジェン　レセプター）がJMJD2B 脱メチル化を介して乳がんを制御しているという研究でした。エピジェネティック制御の基礎的な部分から解説いただき、大変わかりやすかったです。

イントロがとても丁寧で、研究の目的や意義がとてもわかりやすいと感じました。H3K9 の脱メチル化酵素 JMJD2B が ER(＋)の癌に重要だということを、細胞やマウスを用いて調べ、大変興味深かったです。

丁寧でわかりやすい講義後には、次から次へと質問の絶えない活発な討議が展開されました。皆既日食のスライドもありがとうございました。（支援室）