Research Project

Project Title: Identification of genes regulated by β-catenin

Host Laboratory: Division of Clinical Genome Research, The Advanced Clinical Research Center, Institute of Medical Science, The University of Tokyo,
4-6-1 Shirokanedai, Minato-ku, Tokyo 108-8639, Japan
TEL:+81-3-6409-2100 /FAX:+81-3-6409-2101

Supervisor: Yoichi Furukawa , M.D., Ph.D. (furukawa@ims.u-tokyo.ac.jp)

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Research background and proposal:

Wnt signal transduction pathway plays a crucial role in development and carcinogenesis. This signal is de-regulated by the mutation in *APC*, *CTNNB1* (β-catenin), or *AXIN1* in not only colorectal carcinoma but also hepatocellular carcinoma. As a result, accumulated β-catenin enhances the transcriptional activity of TCF4. Although a number of genes that are upregulated by the Tcf/β-catenin transcriptional complex have been identified and studied, non-coding RNAs (ncRNAs) up-regulated and genes down-regulated by the complex are less investigated. We are interested in these ncRNAs and genes. By the expression profile analysis using microarray, we are searching the ncRNAs and genes regulated by β-catenin in cancer cells. About the genes and ncRNAs, we will investigate the mechanisms of their deregulation and identify responsible region(s) for their deregulation. In addition, we would like to explore their function in colorectal and/or hepatocellular carcinogenesis.

Recent publications:

1. Takahashi N, Yamaguchi K, Ikenoue T, Fujii T, Furukawa Y. Identification of two Wnt-responsive elements in the intron of RING Finger Protein 43 (RNF43) gene. PLoS ONE, 9: e86582, 2014.
2. Yamaguchi K, Rui Yamaguchi R, Takahashi N, Ikenoue T, Fujii T, Shinozaki M, Tsurita G, Hata K, Niida A, Imoto S, Miyano S, Nakamura Y, Furukawa Y. Overexpression of cohesion establishment factor DSCC1 through E2F in colorectal cancer. PLoS ONE, 9: e85750, 2014.