S7-03

Study of Metastatic Potential of Gastric Cancer Cell Lines by Comprehensive Proteomic Analysis

Lee You Ra, Kho Chang Won, Park Sung Goo, Cho Sayeon, Lee Do Hee, Choi Chan[1], Myung Pyung Keun[2] and Park Byoung Chul*
Systemic Proteomics Research Center, KRIBB.
[1]Lab of pathology, College of Medicine, Chonnam National. Univ.
[2]School of Pharmacy, Chungnam National Univ..

Gastric cancer is very popular in Korea and metastasis of it is a main obstacle for the treatment of it. Like as many other cancers human gastric carcinoma often metastasizes to lymph nodes, but the mechanisms responsible for lymph node metastasis are not clearly understood. To investigate them, the factors associated with metastasis were identified using proteomic method. We have studied the protein expression profiles of gastric cancer cell line, OCUM-2M LN, with a high rate of lymph node metastasis and its parental cell line, OCUM-2M, which exhibited a low rate of lymph node metastasis by two-dimensional (2D) gel electrophoresis and MALDI-TOF. Protein expression profiles of OCUM-2M LN and OCUM-2M cell lines were generated by two-dimensional electrophoresis (2-DE). More than twenty proteins in these cell lines were identified as differentially expressed ones. Cellular level of some of these proteins increased when cells undergo metastasis while that of others decreased. We have compared with already reported issues by different methods and found some proteins are newly identified for its metastatic potential.

S7-04

Structure of the Extracellular Region of HER2 Both Alone and Complexed with the Herceptin Fab

Cho Hyun-Soo*
Department of Biology, College of Science, Yonsei University.

HER2 (Neu, erbB2) is a member of the epidermal growth factor receptor (EGFR or erbB) family of receptor tyrosine kinases, which in humans includes HER1 (EGFR, erbB1), HER2, HER3 (erbB3), and HER4 (erbB4). ErbB receptors are essential mediators of cell proliferation and differentiation in both the developing embryo and adult, and their inappropriate activation is associated with the development and severity of many cancers. In particular, overexpression of HER2 is found in 20-30% of human breast cancers and correlates with more aggressive tumors and a poorer prognosis. Anticancer therapies targeting erbB receptors have shown promise, and a monoclonal antibody against HER2, Trastuzumab (Herceptin), is currently used to treat breast cancer. We report here crystal structures of the entire extracellular regions of rat HER2 at 2.4 A and human HER2 complexed with the Herceptin Fab fragment at 2.5 A. These structures reveal a fixed conformation for HER2 that resembles a ligand-activated state and show HER2 poised to interact with other erbB receptors in the absence of direct ligand binding. Herceptin binds to the juxtamembrane region of HER2, identifying this site as a target for anticancer therapies