Notice on the collaboration with National Cancer Center

Study on pH-sensitive Epirubicin micelle (NC-6300) has been started collaborating with National Cancer Center (Tsukiji, Tokyo).

Objective:
In order to investigate the clinical utility of NC-6300, detailed data on the efficacy and toxicity will be obtained using orthotopic graft model of human cancer.

Details:
NC-6300*1 is a nanoparticle micellar formulation conjugating Epirubicin (EPI), anti-tumor chemotherapy drug, through acid-sensitive hydrazone linkers. Particle size of NC-6300 is approximately 50 nm, and NC-6300 can reserve drugs in the blood and is preferentially accumulated in tumor tissue by EPR effect*2 (Enhanced Permeability and Retention effect). NC-6300 is internalized into cells via small membrane vesicle, endosome. Internalized NC-6300 equipped with the chemical pH-sensor, hydrazone linkers, can release the conjugated EPI actively by sensing the pH in endosome (pH 5 – 6) lower than physiological condition (pH 7.4), which leads to the preferential release of EPI in tumor cells. So far, significant efficacy of NC-6300 was observed against subcutaneous human cancer xenograft model in nude mice. In this study, the clinical utility of NC-6300 will be investigated by the assessment of efficacy and the reduction of EPI-related cardiotoxicity in orthotopic graft model of liver cancer.

Effect on the financial results in FY March 2011:
The initiation of this study has no impact on the financial results in FY March 2011.

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*1 NC-6300: Nanoparticle micelle formulation conjugating EPI through acid-sensitive hydrozone linkers, which can release conjugated EPI by sensing the pH decrease.


*2 EPR effect: Preferential tumor accumulation of nanoparticles by marked vascular hyperpermeability tocirculating macromolecular carriers and impaired lymphatic drainage in tumor.

Matsumura Y and Maeda H. Cancer Res 1986, 46, 6387-6392