



膜生物学・医学学術講演会

平成27年

日時

11月20日(金)

16:30~18:00

会場

BTセンター1階 会議室



演者：Dr. Roberto Cattaneo, PhD

Department of Molecular Medicine, Mayo Clinic, and Virology
and Gene Therapy Track, Mayo Graduate School

演題：“Nectin-dependent spread of
measles virus: beyond airway epithelia”

Several viruses use cell-cell adhesion proteins as receptors, even if these proteins are not readily accessible (*Mateo et al, 2015, J Cell Sci 128, 431-439*). Measles virus, an enveloped RNA virus that is the most contagious human respiratory pathogen, co-opts the adherens junction protein nectin-4 as its epithelial receptor. Measles virus spread in the airways is very rapid, preserves epithelium integrity, and depends on the cytoskeletal connections of nectin-4 (*Singh et al, 2015, J. Virol. 89, 7089-7096*). We now show that to spread beyond airway epithelia MeV can co-opt a newly discovered process: nectin-mediated trans-endocytosis. The Troyanovsky (Northwestern U.) and Shapiro/Honig (Columbia U.) groups recently observed that epithelial cells expressing nectin-1 efficiently take up pieces of the plasma membrane of cells expressing nectin-4. This is reminiscent of trans-endocytosis, a process initially characterized in immune cells that results in the transfer of a ligand from one cell to its receptor on a different cell. We show that this process is driven by an endocytic motif in the cytoplasmic tail of nectin-1, and that exchanging the cytoplasmic tails of nectin-4 and nectin-1 reverses directionality. Nectin-dependent trans-endocytosis allows for intercellular transfer of viral genomes, resulting in productive infection of 1-3% nectin-1 expressing epithelial cells. In collaboration with the Taylor group (Montana State U.) we are assessing whether trans-endocytosis transfers infections to nectin-1 expressing neurons, and how efficiently. This transfer could account for subacute sclerosing panencephalitis, a rare but always lethal complication of measles. Nectin-mediated trans-endocytosis may be an ancestral mechanism of cell communication.

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[主催] 膜生物学・医学教育研究センター ※事前申込は不要です

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