P15-026
Understanding the mechanism of dendrimer adsorption onto oppositely charged surfaces using surface plasmon resonance and quartz crystal microbalance techniques

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Dendrimers are fascinating hyperbranched polymers, which belong to the multifunctional, well-defined and nano-sized compounds. Due to their unique properties and specific structure they have been considered to be one of the most promising groups, that could revolutionise medicine. At present, dendrimers are very popular in many areas of research: drug delivery, gene delivery, cancer-targeting therapy and diagnosis.

One of the most studied dendrimers is polyamidoamine, PAMAM, a dendrimer containing primary amine groups in the outermost layer. The physicochemical properties of 6th-generation poly (amidoamine) G6 PAMAM dendrimers have been investigated using different techniques such as surface plasmon resonance (MP-SPR) and quartz crystal microbalance (QCM-D). They are powerful methods that enable highly sensitive, qualitative, real-time, label-free and noninvasive detection of macromolecular interactions. We investigated how dendrimers adsorbed from aqueous solution onto SiO_2 surface. This phenomenon strongly depends on pH of the electrolyte solution that influences swelling of the PAMAM films (the lower pH, the stronger the swelling). This is a consequence of spatial relocation of the dendrimer amide groups due to the interactions of the positively charged amines with the oppositely charged condensed counterions and the penetrating water molecules. Comparing the results obtained from MP-SPR and QCM-D allows the estimation of the water content of the film. These results are essential for designing an alternative scheme for drug and gene delivery.

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P15-027
Towards small molecule-based targeted delivery to immune cells

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In cancer therapy conventional, systemic application of pharmaceutically active small molecules and biologics often results in lack of selectivity and nonspecific toxicity. Although passive targeting of nanocarriers increases penetration of the diseased tissue, cell-specific delivery would greatly increase the therapeutic efficacy of many drugs. In particular, targeted delivery of tumor antigens using nanoparticles to immune cells has gained momentum in cancer immunotherapy. C-type lectins are cell surface receptors on immune cells involved in the regulation of antitumor response and consequently harbor great potential for targeted delivery approaches. These receptors recognize carbohydrate structures on pathogens and trigger internalization of the cargo. Therefore they represent receptors for antigen delivery and processing. Here, we explore several mammalian cell lines as model systems to investigate C-type lectin receptors for small molecule-based liposomal delivery *in vitro*. Interestingly, cell-type specific characteristics regarding expression levels and the occurrence of intracellular receptor pools were observed. With these models in hand we can now investigate the endocytic mechanisms as well as their relationship to the nature of the nanocarrier systematically.

P15-028
S1103Y-SCN5A alterations in tumors and normal tissues of patient with colorectal cancer

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In recent works, ion channels and transporters have emerged as novel mechanisms driving the carcinogenesis. A novel hypothesis of metastasis called "CELEX" (for cellular excitability) is based upon concerted expression of voltage-gated ion, particularly Na+ and K+, channels during cancer progression. The aim of our study depend on results of previous ones was to assess S1103Y-SCN5A alteration in the patients with colorectal cancer.

A total of 60 paraffin-embedded colorectal cancer specimens were obtained from department of pathology in Cerrahpasa Medical Faculty. Also a total 60 paraffin-embedded normal tissue was used from same cases as a control group. Ten-micrometer-thick tissue sections were placed on a glass slide and stained with HE. DNA was extracted from the tissues with 100 μL of extraction buffer at 55°C over night. The tubes were boiled for 10 min to inactivate the proteinase K. The S1103Y genotype was determined by PCR amplification of SCN5A exon 18, restriction enzyme analysis and gel electrophoresis. PCR reactions were performed with sense primer 5′AGGGTCTGAAACCCCCAG GGTCA3′and antisense primer5′CCAGCTGGCTTCAGGGA CAAA3′. Restriction enzyme analysis was performed using 1 μL of PCR product, 1 μL of enzyme digestion buffer, 2 U BseRI. The reaction mixture was incubated at 37° C for 2 h, followed by 65° C for 20 min. Digested samples were separated on a 3% agarose gel.

In this study, we explore S1103Y-SCN5A mutations in the colorectal tissues, not only tumors but also normal. On the other hand, much more work is required for the association Na+ channels with cancer progress.

P15-029
Interferon regulatory factor 5 as a therapeutic target in Hepatitis C virus-associated hepatocellular carcinoma

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Chronic inflammation associated with HCV infection is implicated to promote cirrhosis and hepatocellular carcinoma (HCC), but the molecular players and signaling mechanisms which contribute to this process largely remain elusive. Interferon regulatory factor 5 (IRF5) is a multi-faceted protein with critical role in virus-, IFN- and DNA damage-induced signaling pathways. Of note, is its well documented role in several inflammatory disorders including lupus and recent emerging evidence for IRF5 function as a tumor suppressor molecule. Given the relevance of both inflammation and cancer to HCV infection, it is very intriguing that IRF5 expression and signaling in context of HCV infection has not been investigated to-date. Here, we present evidence for the first time for modulation of IRF5 expression and signaling during HCV infection. Employing human hepatoma cells autonomously replicating HCV RNA, we demonstrate down-regulation of IRF5 expression at the mRNA and protein levels. Notably, we reveal the clinical significance of IRF5 to HCV from immunofluorescence (IF) staining of human tissue array specimen depicting dramatic down-regulation of IRF5 pro-