

# Mayda Gürsel

10:30 a.m -

Faculty Member, Associate Professor Middle East Technical University,  
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## Self-assembling nanoparticles as carriers for TLR9 agonists

Results of clinical trials using CpG ODN as immunotherapeutic agents suggest that they are less potent in humans than in rodents, necessitating development of alternative strategies that would improve their therapeutic potential. Our work focuses on the development of a novel drug delivery concept based on the principles of molecular self-assembly. The system is composed of three components (folic acid, lanthanide ions and a CpG ODN) that spontaneously assemble to form adaptive folic acid-lanthanide coordination shells around the therapeutic agent. The resulting "coordination nanoparticles" demonstrate increased ODN uptake by cells expressing folate receptors and improved anti-tumor activity in a xenograft model in nude mice.

**Monday  
January 17, 2011**

**10:30 - 11:50 a.m.**

**Taniguchi Memorial Hall  
1F Integrated Life Science Bld**

WPI Osaka University  
**iFReC  
Seminar**

11:10 a.m -

**ihsan Gürsel**

Associate Professor, Bilkent University, Department of Molecular Biology and Genetics  
UNAM, Institute of Materials Science and Nanotechnology,  
Nanobiotechnology Research Unit, Ankara, Turkey

## HOW TO IMPROVE THE POTENCY OF "TLR-THERAPEUTICS" IN VIVO

Studying the immunobiology of the Toll-like receptors is one of the most popular fields in basic and applied immunology in recent years. There is no doubt that TLR therapeutics soon will be in the clinics. The endosomal-associated TLR ligands are one of the most promising candidate drugs as an immunotherapeutic agent against diseases like cancer, allergy, and infectious diseases (including viral, parasitic and bacterial infections) as well as vaccine adjuvants or immunoprotective agent where there is no available vaccine. We propose that formulating these labile nucleic acid based bioactive agents in depot systems improve their bioavailability and accumulation at the sites of the target cells. Data suggested that amphiphilic natural polysaccharides and nanoliposomes possessing special physicochemical properties are not only suitable for potent carriers of these ligands but also improve their in vivo immunostimulatory activities. In this presentation recent findings concerning these efforts will be summarized.

**Host: Cevayir Coban**  
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