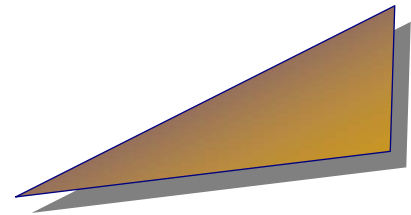
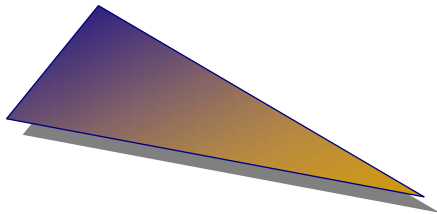


# Biomedical Engineering

## *Lecture Series Seminar*

### **The Mammalian High Mobility Group Protein AT-hook 2: a DNA-binding onco-protein**



Monday, July 28, 2008

10:30 AM

EC 2300

***Fenfei Leng, Ph.D.***

The mammalian high mobility group protein AT-hook 2 (HMGA2) is a DNA-binding protein that specifically binds to the minor groove of AT-rich DNAs. It is only expressed in proliferating, undifferentiated mesenchymal cells and undetectable in normal fully differentiated adult cells (1,5). Disruption of its normal expression patterns causes the formation of a variety of tumors, including benign and malignant tumors. We have used a variety of biochemical and biophysical methods to investigate how HMGA2 interacts with AT-rich DNAs. Our results demonstrated that HMGA2 is a sequence-specific DNA-binding protein and binds to AT-rich DNAs as a monomer. We also showed that HMGA2 binds to poly(dA-dT)<sub>2</sub> and poly(dA)poly(dT) with high affinity in which the binding of HMGA2 to poly(dA-dT)<sub>2</sub> is enthalpy-driven and to poly(dA)poly(dT) is entropy-driven. These results also showed that HMGA2 can be used to design more efficient anti-cancer drugs.