# CDB SEMINAR

**Speaker:** Mike DeCastro

**<University of Utah>**

**Title:**

"Non-Viral Gene Delivery in the Chick Embryo"

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| **Date:** | **Monday, May 16** |
| **Time:** | **16:00 -17:00** |
| **Place:** | **7th floor Conference Room of Building A** |


## Summary:

My research focuses on the development of new reagents and strategies that are designed to overcome the limitations of current transfection techniques, allowing more informative mis-expression experiments for studying early developmental events in the chick embryo.

We have developed, optimized and characterized a multi-component, cationic lipid based gene delivery system that produces high levels of gene expression when injected both systemically and locally in developing chick embryos *in vivo*. Using a detergent dialysis procedure, the stabilized plasmid-lipid particles are formed with a polyethylene glycol coating encapsulating the plasmid DNA within the particle. The peg-ylated lipid, constructed by conjugating polyethylene glycol to the lipid DOPE through a hydrolysable disulfide linkage, allows the particles to be formed at very high concentrations without the formation of inactive aggregates and also prevents the loss of activity due to serum.

Using these highly active lipofection particles, we can add cell specific targeting, producing even greater transfection efficiencies and more importantly limiting mis-expression to only particular cells of interest. Targeted gene expression will allow dissection of the complicated signaling and gene interactions involved in normal embryonic development, as well as provide the basis for clinically relevant gene delivery strategies potentially capable of preventing or rescuing serious birth defects in humans.



**Host** **Raj Ladher<sensory Development ,CDB>**

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