“Plays nice with others”: Integrating with Mouse Gene Index and other Resources

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Scenario

- Developmental Genomics and Aging Section @ NIA has lots of image data
  - Mouse in-situ
  - Developing embryo
  - Images for 91 genes for 7 developmental stage
    - Yoshikawa, et al. **High-throughput screen for genes predominantly expressed in the ICM of mouse blastocysts by whole mount in situ hybridization.** Gene Expression Patterns, 2006
- Goal: Use OME to provide/display supplemental data
- Related : Magdaleno, et al., BGEM: An In Situ Hybridization Database of Gene Expression in the Embryonic and Adult Mouse Nervous System, PLOS Biology, April 2006

Example

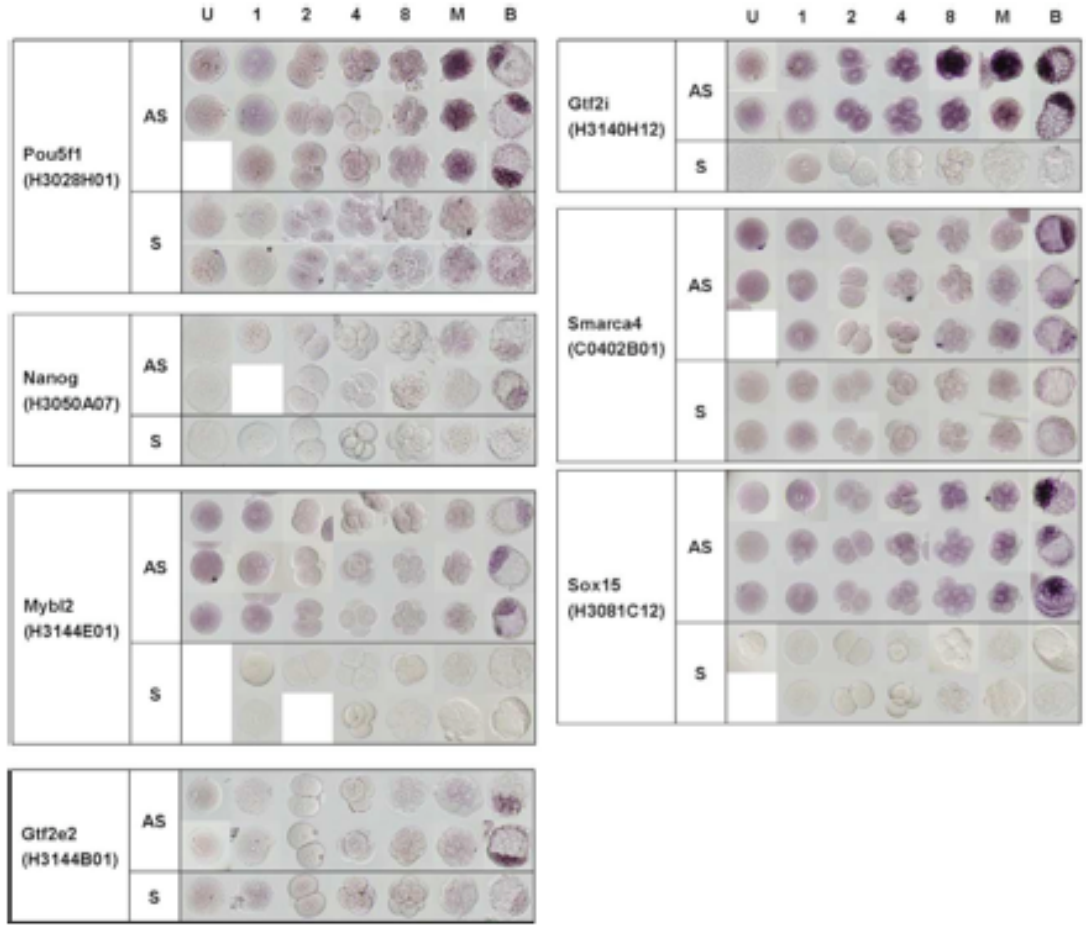
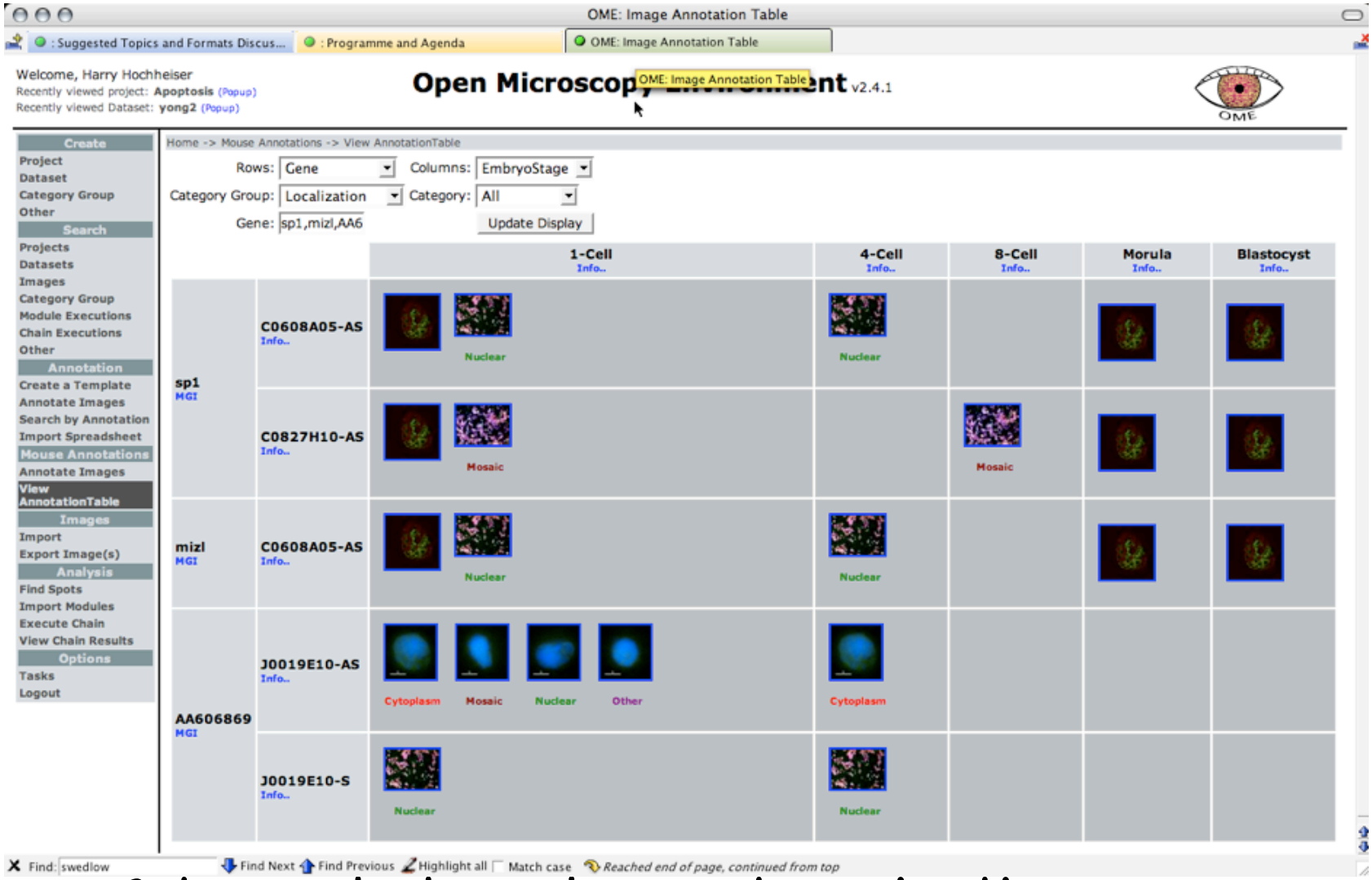


Fig. 3. WISH results of 7 genes during preimplantation development. AS; antisense probe, S; sense probe

- Can we do this with OME?

In OME…



- Color code based on categorizations
- Outlinks to MGI

Image Detail Display

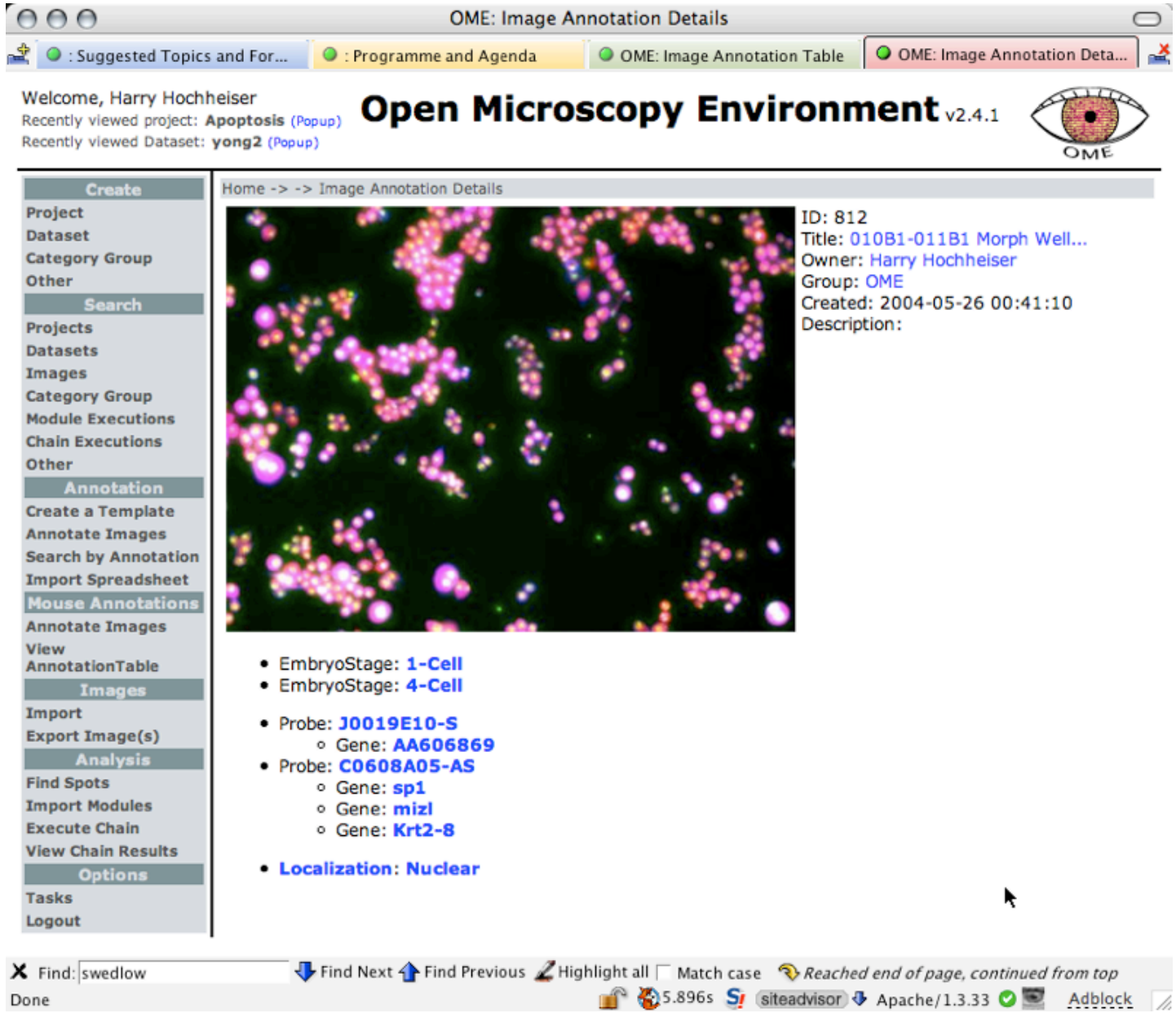
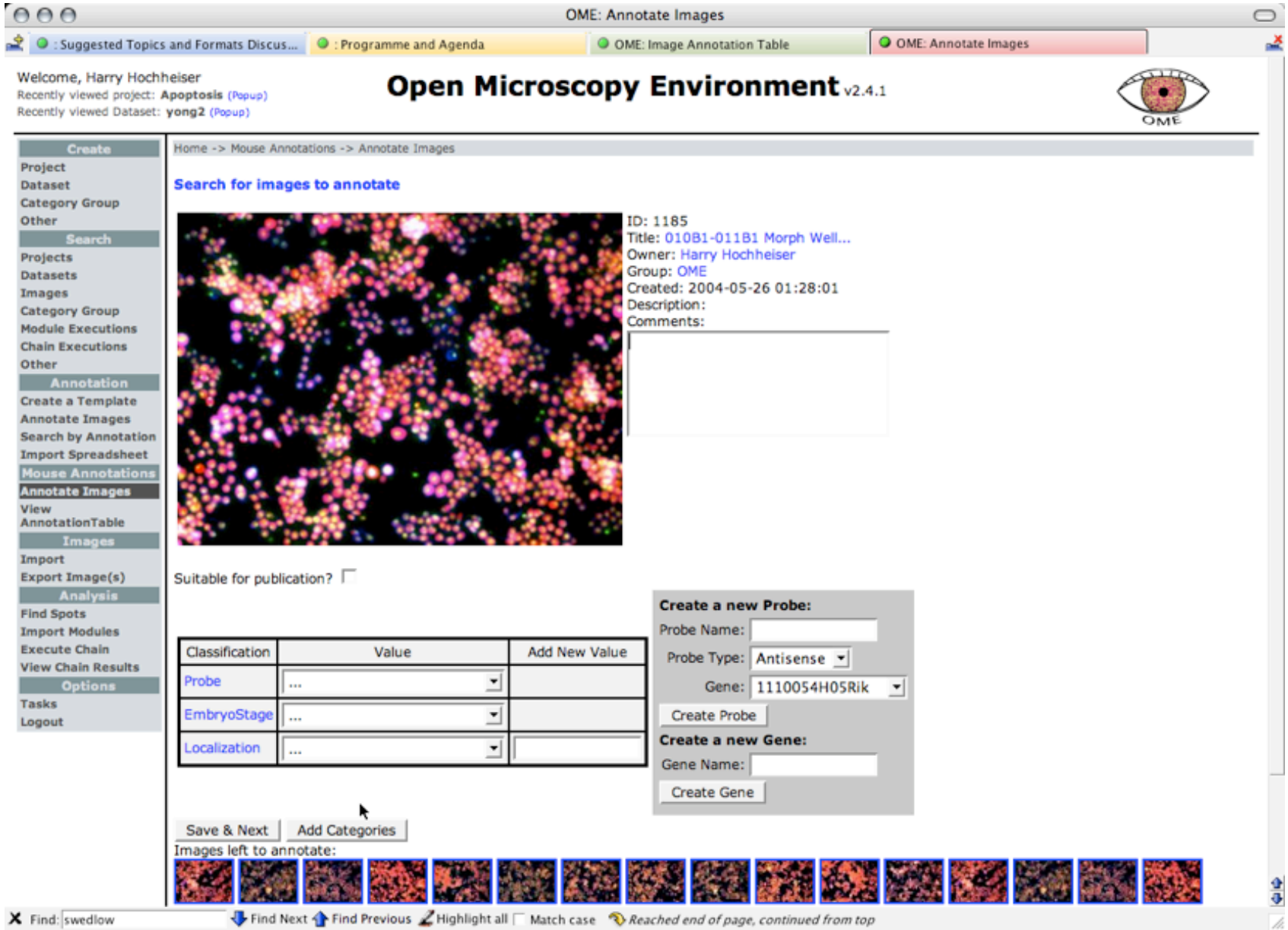
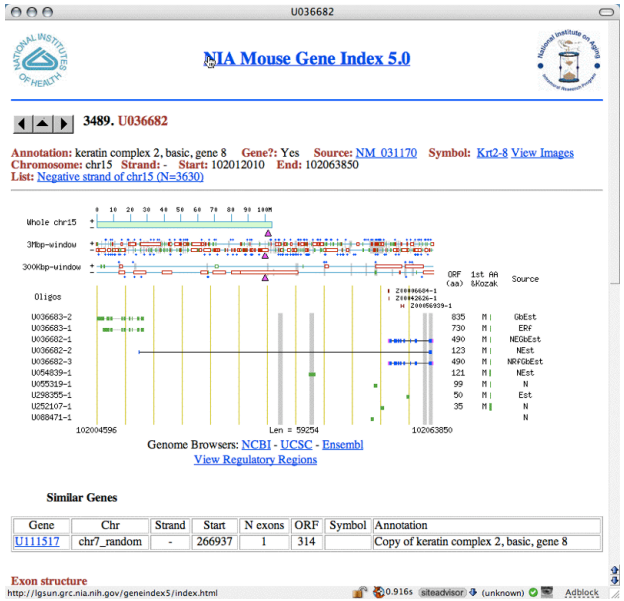
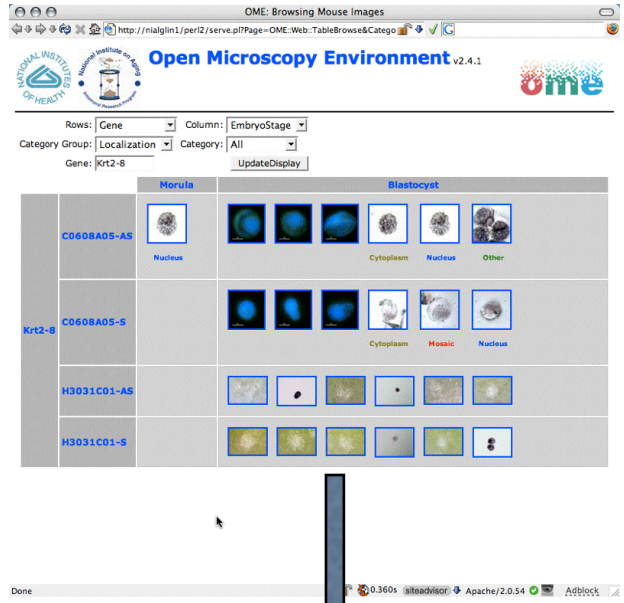


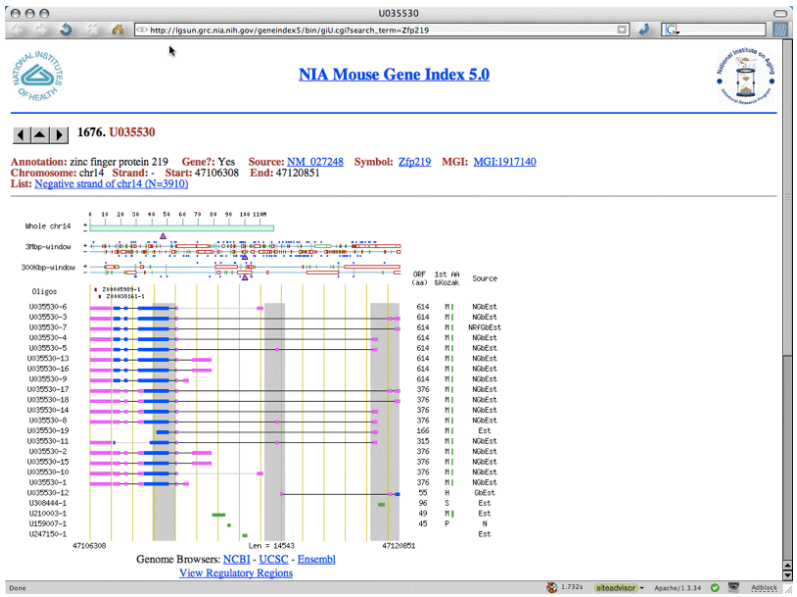
Image Annotation

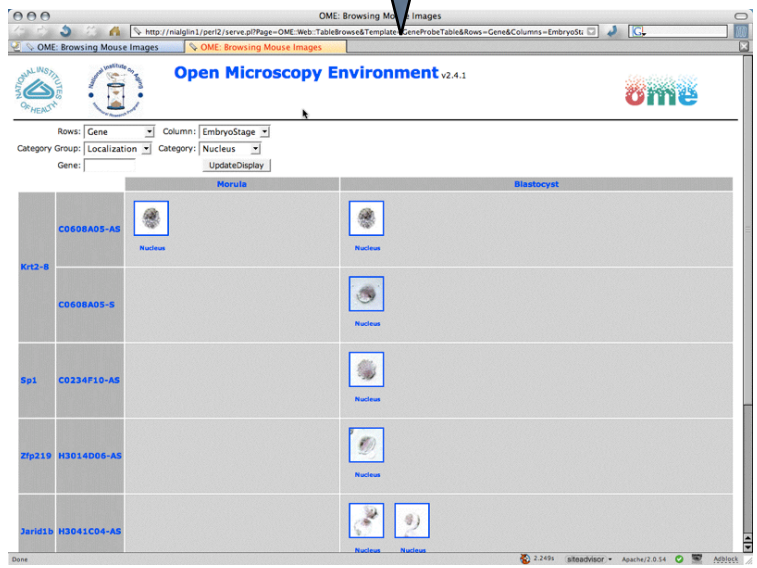


"Closing the Loop"

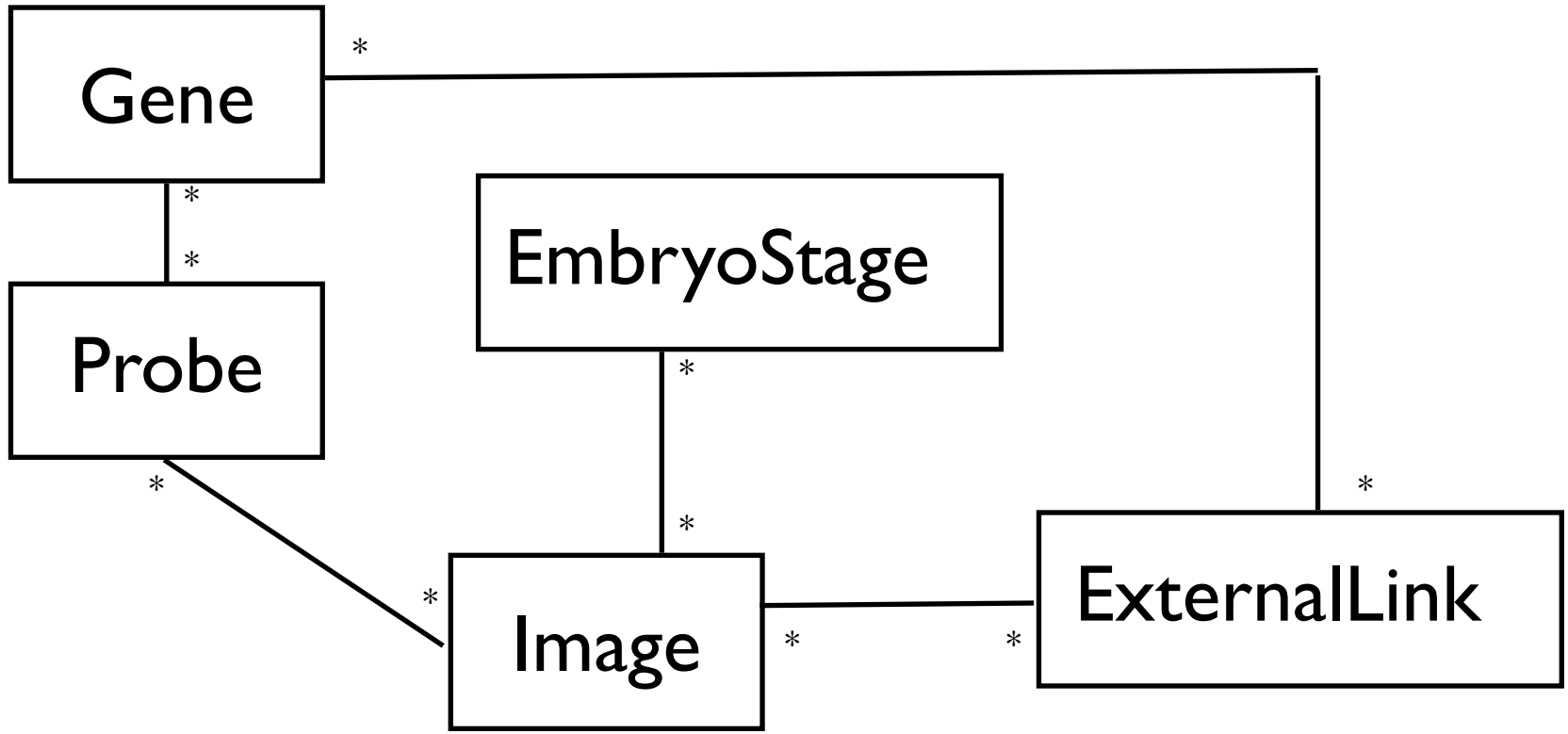








Data Model



Modeling External Data: What's in a Link?

- External ID
- Description
- URL

- What else do we need?
- How do we link to other Resources?
  - GeneOntology?

- General Question: OME and ontology integration??
  - OME in OWL?

A General Methodology for OME Web UI applications

- Identify specific problem and goals
  - User or designer-driven
- Write requirements/specs
  - usage scenarios
- Prototype
- Discuss with users and revise
- Generality:
  - Design appropriate data models
  - Use templates
  - Generalizable custom code - configuration specifics in templates, not in code

Towards a more usable Web Interface

- Goal: make OME more usable for more people
  - Not: make it do everything for everyone
  - Not: throw it all out and start from scratch

- Apply this methodology to core tasks
  - Importing images - selection, process feedback, etc.
  - Annotations: revision of existing pages?
  - Browsing Data structure: screens/plates, projects/datasets, etc.?
    - quasi-hierarchical?
  - Running analyses and interpreting results