

## Lecture Outline for “Experimental Approaches in Molecular and Cell Biology”

Topic	<b>Methods to detect protein-protein interactions</b>
Lecturer	<b>Dr. Chih-Yen King</b>
Course Outline	<ol style="list-style-type: none"><li>1. Introduction to protein-protein interactions<ol style="list-style-type: none"><li>a. Genetic interaction vs. physical interaction</li><li>b. Do it in the scale of the whole genome</li></ol></li><li>2. Yeast two-hybrid systems<ol style="list-style-type: none"><li>a. Systems based on transcription activation</li><li>b. The cyto-trap system</li><li>c. The split-ubiquitin method</li></ol></li><li>3. Co-immunoprecipitation and pull-down assays</li><li>4. Isolation and characterization of protein complexes<ol style="list-style-type: none"><li>a. The tandem affinity tag method</li><li>b. The blue native polyacrylamide gel electrophoresis (BN-PAGE)</li></ol></li><li>5. Biophysical methods<ol style="list-style-type: none"><li>a. Fluorescent probes</li><li>b. Chemical cross-linking</li><li>c. Spectroscopic methods</li></ol></li></ol>