

Genomic tools for <i>Xenopus laevis</i>	Development of the <i>X. tropicalis</i> System	Resource Centers
<p>1) Produce ESTs From existing cDNA libraries and from new libraries prepared specifically for this purpose. Use existing libraries as much as possible and make new ones to fill in gaps.</p> <p>stages of <i>laevis</i> development: Ovary and egg, Stages 10-11/12, 15-20, 28-36, 45 XTC cell line</p> <p>Stages of <i>tropicalis</i> development egg, 10-12, 15-20.</p> <p>Adult <i>laevis</i> organs Heart, male liver, brain, pancreas, kidney, fat body.</p> <p>Timing: 6 to 8 years Cost: \$11.34/clone and 100,000 attempts/year</p>	<p>I. <i>X. tropicalis</i> Genetics Provide direct evidence for the diploidy and initiate genetic studies, in order of priority:</p> <p>a) Insertional Mutagenesis b) Gynogenesis c) Chemical Mutagenesis d) Preparation of Deletions</p> <p>Recommend 6 R01-sized projects.</p>	<p>A. Database</p> <ul style="list-style-type: none"> • Gene expression • Fate maps • cDNA Libraries • <i>X. tropicalis</i> Genetics • News and technical innovations • Links to Microarray Sites • Links to EST database <p>Cost to set up: \$1 million for the first two years. Cost to Maintain: \$0.5 million per year.</p>
<p>2) Produce and sequence full length cDNA Libraries</p> <p>a) <i>Xenopus laevis</i> ovary, egg and embryonic stages; b) <i>Xenopus laevis</i> organs; c) <i>Xenopus laevis</i> late stages; d) <i>Xenopus laevis</i> early stages</p> <p>Cost and time table: \$15 million over three years.</p>	<p>II. <i>Xenopus tropicalis</i> Gene Mapping</p> <p>a) Large insert genomic DNA library, 10X coverage b) Evaluation of genome organization c) Radiation hybrid panels d) Preliminary mapping with microsatellite or other polymorphic markers</p> <p>\$200K for PAC/BAC libraries, and \$200K per year for screening libraries. Recommend \$100K for two years for genome studies and \$250K for three years for RH panels and mapping.</p>	<p>B. Animal Stock Center</p> <p>Maintain and distribute about 200 transgenic and mutant lines of <i>Xenopus laevis</i> & <i>Xenopus tropicalis</i>. Include a training component.</p> <p>\$250K for first year and \$500K per year for subsequent years</p>
<p>1) Microarrays Recommended establishing 3 <i>Xenopus</i> Microarray facilities. These facilities should also distribute clones</p> <p>Cost: about \$500k/year each (not including clone storage and distribution).</p> <p>Provide supplements to existing grants for Array Readers (\$50-70K). Duration: until competitive continuation</p>	<p>III. Transition Funding To enable <i>Xenopus laevis</i> labs to begin to use <i>X. tropicalis</i> via supplements to existing <i>Xenopus laevis</i> labs— about \$20K each</p> <p>IV. Sequencing the Genome of <i>X. tropicalis</i></p> <p>Preliminary discussion and planning for a genome-wide sequencing project is recommended.</p>	<p>C. Training Center</p> <ol style="list-style-type: none"> 1) Continue and enlarge existing CSH lab <i>Xenopus</i> Course 2) Establish new training facilities that emphasize techniques such as Transgenesis