

## **Budget Justification**

This is a four-year project with a cumulative budget request for the entire project of \$649,548. The budget comprises of \$316,060 for salaries and R&D, \$144,218 for expenses and travel, and \$189,270 for 42.8% Facilities and Administrative cost (F&A). Salaries are requested for the PIs and a graduate student. An itemized justification of costs is listed below.

### **Personnel Services:**

We are requesting stipends for the PI for 6 months of \$40,000 for each of Yrs 1 to 4 effort, respectively. A 50% graduate student stipend at \$16,788 for Yr 1, \$17,292 for Yr 2, \$17,810 for Yr3 and \$18,345 for Yr 4 is requested. We also request funds for health insurance \$ 2,848, \$2,933, \$3,021, and \$3,112 for each Yr 1 through Yr 4. In addition, we request 8% rate for the student's fringe benefits of \$207, \$213, \$219, and \$226 Yr1 through Yr4, and \$13,600 per year for Fringe Benefits for the PI at a rate of 34%. With the help of the principal investigators, the graduate student will prepare the proposed reagents and analyze data. The annual stipend requests reflect an anticipated 3% increase for the student's salary and both the PI and student's fringe benefits.

### **Aquaculture Research Center tank fees:**

We also request fish holding tank operation budget for both UMBC and NOAA (\$23,500 for Yr 1, \$21,000 for Yr 2, \$20,000 for Yr3, and \$18,000 for Yr 4) to defray the costs of holding and maintaining the fish models over the course of the 4 year project.

### **Travel:**

We request \$10,718 for 6 visits of 6 days each for the student traveling from UMBC to Manchester, WA to conduct the 6 month experiment planned for Yrs 3-4.

### **Materials and Supplies**

In order to carry out the proposed studies we request an annual materials and supplies budget of (\$ 18,000 for Yr 1, \$12,000 for Yr 2 and \$10,500 each for Yrs 3 and 4). This budget includes peptide synthesis services, recombinant protein production (See letter of support from Prof. Levavi-Sivan), purchase of plasmids prep kits, molecular biology supplies, reverse transcription kits, qRT-PCR reagents (Taqman kits, and other PCR-related supplies), and ELISA reagents and histology supplies. Common-use Taqman equipment is available at DMB (see Facilities Description) and maintained with center overhead costs.

### **Tuition**

We request 6 credits @\$721/credit of tuition: \$4,326 for Yr1, \$4,542 for Yr 2, \$4,769 for Yr 3 and \$ 5,008 for Yr 4 at the University of Maryland Baltimore County.

### **Indirect Costs**

An indirect cost rate of 42.8% was used as per the program requirement. The allocation base is modified total direct costs, consisting of salaries and wages, fringe benefits, materials, supplies, services and travel. Modified total direct costs shall exclude equipment, capital expenditures, student tuition remission, rental costs of off-site facilities, scholarships, and fellowships.

**Matching Funds waiver**

This project involves technology development to solve a problem in the aquaculture industry (i.e., the long time required for slow-maturing finfish species to reach puberty and establish reproductive competence). More specifically, this problem affects the broodstock animals of multiple species that are cultured in captivity. This novel technology, once developed, is expected to be of benefit nationally and internationally, but the species affected (e.g., our model species, sablefish, as well as others) are not the most commonly consumed finfish in the US or internationally (in part because of the late maturation problem that affects captive broodstock development and restricts large-scale cultivation of the affected species). Moreover, the developed technology can be easily transferred to other fish species and is not restricted to reproduction. Thus, it can be used to address several other hurdles in Aquaculture such as growth, immunity etc. Altogether, this project is expected to support aquaculture species diversification efforts and the much-needed development of the aquaculture sector in general. For these reasons (i.e., the national/international scope of this scientifically important technology that will benefit a variety of finfish species and enable industry-wide aquaculture diversification), we request that the matching fund requirement for this submission be waived.