

## Kelleigh's Cause, Inc.

### Children's Hospital of Wisconsin Arteriovenous Malformation Research Project Patricia Burrows M.D.

#### **Research purpose and objectives:**

1. To determine the mechanism of progression of AVM in humans
2. To develop a reproducible animal model for testing potential pharmacotherapy
3. To develop drug treatment of human AVM

#### **Process:**

##### ***Animal Studies:***

1. Zebra fish and mice will be bred with genetic alterations resulting in cerebral or somatic arteriovenous malformation.
2. The zebra fish and mice with AVM will be exposed to various pharmaceuticals. The effect of the pharmaceuticals will be determined by examination of the animals without them with exposure to the drug.

##### ***Human Study:***

*Step One:* patients presenting to the vascular anomalies programs at Children's Hospital of Wisconsin and Froedtert Hospital will be enrolled in a database. Clinical information, AVMs staging, quality of life assessment and imaging features will be entered. Urine and blood samples, and possibly biopsies will be taken at various stages of Clinical management. Treatment, when offered, will be assessed in terms of quality of life change, additional urine and blood samples and possibly blood flow imaging to quantify changes in blood flow. Urine, blood and tissue specimens will be analyzed for levels of specific proteins that are involved in the formation of blood vessels. Serial study of these proteins will demonstrate whether or not they are affected by changes in the AVM and the treatments provided.

*Step Two:* pharmaceuticals identified from the animal studies will be offered to patients with symptomatic AVM. Urine, blood and tissue samples will be obtained before and during drug treatment to monitor the effects of the drugs.

#### **Funding Requirements:**

1. To proceed with the animal studies, \$150,000 is needed to hire a research fellow and technologist to carry out the necessary experiments in the animal lab.
2. Staff is currently in place to collect and process urine, blood and tissue samples from patients. Some funding, in the range of \$1,000- \$2,000 per patient, will be necessary to do the protein assays.
3. Additional funding will be needed to conduct a clinical trial on patients.