

Preeclampsia Foundation Vision Grant: Final Report
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I would like to thank the Preeclampsia Foundation for awarding our research proposal, “Cerebral vessel reactivity and blood-brain barrier changes with exposure to plasma from preeclamptic women” a 2008 Vision Grant Award. Two main studies were completed with the funding from the Preeclampsia Foundation. The first, entitled “Resistance Artery Adaptation to Pregnancy Counteracts the Vasoconstricting Influence of Plasma from Normal Pregnant Women” examined the effect of perfusing plasma from healthy nonpregnant and normal pregnant women on cerebral arteries from nonpregnant and late pregnant rats to examine if and how circulating factors in the plasma of pregnant women change the function of these brain vessels.

This work was presented as a poster at the Society of Gynecologic Investigation meeting in Glasgow, Scotland in 2009:

Amburgey ÖA, Reeves SA, Bernstein IM, Cipolla MJ. Plasma from Normal Pregnant Women Diminishes Endothelium-Derived Hyperpolarizing Factor (EDHF) Production in Cerebral Arteries. *Reproductive Sciences*. 2009; 16 (3 Supplement): 263A.

Additionally, a manuscript was completed and published with the following reference:

Amburgey ÖA, Reeves SA, Bernstein IM, Cipolla MJ. Resistance Artery Adaptation to Pregnancy Counteracts the Vasoconstricting Influence of Plasma from Normal Pregnant Women. *Reprod Sci* 2009; 17: 29-39.

The second study completed under our research proposal was entitled “Changes in Cerebral Artery Function and Cerebral Vein Permeability with Exposure to Preeclamptic Plasma.” Cerebral artery reactivity and endothelial vasodilator production changes were compared in brain vessels from pregnant rats exposed to plasma from normal pregnant and preeclamptic women. This work was presented as a poster at the 2010 Society of Gynecologic Investigation meeting in Orlando, Florida, and was the recipient of a “Top Poster Presentation” award given to 10 posters of new investigators:

Amburgey ÖA, Chapman AC, Bernstein IM, Cipolla MJ. Effects of Preeclamptic Plasma on Cerebral Artery Reactivity, Tone and Endothelial Vasodilator Production. *Reproductive Sciences*. 2010; 17 (3 Supplement): 329A.

Additional experiments were completed evaluating the effect of circulating factors in the plasma of normal pregnant and preeclamptic women on blood-brain barrier (BBB) function. We also investigated the involvement of VEGF, an angiogenic molecule with potent vascular permeability properties, in mediating changes in BBB permeability in response to plasma exposure. This work was presented as a poster at the 2010 Society of Gynecologic Investigation meeting in Orlando, Florida:

Amburgey ÖA, Chapman AC, Bernstein IM, Cipolla MJ. Acute exposure to preeclamptic plasma increases blood-brain barrier hydraulic conductivity: role of VEGF. *Reproductive Sciences*. 2010; 17 (3 Supplement): 327A.

Additionally, a manuscript was completed and is currently under revision:

Amburgey ÖA, Chapman AC, May V, Bernstein IM, Cipolla MJ. Preeclamptic plasma increases blood-brain barrier permeability by activation of VEGF receptors. *Hypertension* (under revision).

We are very grateful for the support of the Preeclampsia Foundation. This type of funding is important to encourage young investigators to pursue research focusing on the field of preeclampsia.