

**P-082: ANTHRAQUINONES FROM *RHEUM PALMATUM* DISPLAYING ESTROGENIC ACTIVITY**

Scott Baggett<sup>1,2\*</sup>, Jennifer Jackson<sup>3</sup>, Len Bjeldanes<sup>2</sup>, Isaac Cohen<sup>1</sup>, and Dale Leitman<sup>3</sup>

<sup>1</sup>*Bionovo, Inc, 5858 Horton Street Suite 375, Emeryville, CA, 94608;* <sup>2</sup>*Department of Nutritional Sciences and Toxicology, UC Berkeley, California, 94720;* <sup>3</sup>*Department of Obstetrics, Gynecology and Reproductive Sciences and Center for Reproductive Sciences, UCSF, California, 94143*

As part of a program to isolate estrogenic compounds from Traditional Chinese Medicines, rhizomes of *Rheum palmatum* (Polygonaceae), common name “da huang”, were subjected to activity-guided isolation where a series of anthraquinones were obtained. Reported uses for *R. palmatum* include: treatment for constipation, abdominal and gastric pain, and dysmenorrhea. Also, “da huang” has been used as an antipyretic, to eliminate swelling and abscesses, and as a diuretic. In this study five anthraquinones, aloe-emodin, chrysophanol, emodin, octahydroxyanthraquinone, and rhen were isolated. Purified compounds were assayed for their estrogenic activity using transient transfection assays in the human U2OS bone cell line with an estrogen response element linked to the luciferase reporter gene (ERE-tkLuc). We found that all the anthraquinones activated the ERE-tkLuc in the presence of ER $\beta$ , but not ER $\alpha$ . Our results demonstrate that *R. palmatum* contains a family of ER $\beta$ -selective estrogens, which may be a safer alternative to the estrogens used in hormone therapy, which non-selectively activate both ER $\alpha$  and ER $\beta$ .