

TITLE: Role of Insulin-Like Binding Protein 5 in Leiomyoma Development and Growth

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RESEARCH PROJECT DESCRIPTION:

Uterine leiomyomas (aka fibroids) are the most common pelvic tumor in reproductive aged women, with an incidence of more than 60% by age 45. Fibroids can cause infertility, heavy vaginal bleeding, miscarriage, and pelvic pain. They represent the number one indication for hysterectomy in the United States. Leiomyomas are hypo-cellular consisting primarily of extracellular matrix (ECM) with a small amount of intervening smooth muscle cells. They are responsive to both estrogen and progesterone and the growth inducing effect of these reproductive steroids are mediated primarily by growth factors such as TGF-Beta and IGF-I. Leiomyomas appear earlier and come to clinical attention quicker in the African-American population primarily due to an increased incidence of genetic polymorphisms enhancing estrogen responsiveness via increased IGF-I levels and action. Recent studies show that IGF-BP 5 expression is greatly increased in leiomyomas and the role of IGF-BP 5 is to assist in the delivery of IGF-1 to the cell to increase cell division and ECM production. Our lab will be looking at the regulation of IGF-BP 5 in leiomyoma cells obtained from patients having hysterectomy and we will target this interaction via several blocking strategies to determine the effectiveness of this strategy as a potential new medical therapy. Medical students will assist in the collection of fibroids from the OR using an IRB approved protocol. Students will observe and participate in experiments and in the analysis of data and preparation of findings for presentation and publication. Funding: Pilot grant and departmental support

References

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- 2.) **Christman GM**, Kavoussi S, Kumetz L: Chapter 18 Uterine Leiomyomas. *Clinical Reproductive Medicine and Surgery: A Practical Guide*. 2013 1st Edition, Springer Science and Business Media. Falcone, Hurd (Eds).
- 3.) Martel KM, Ko AC, **Christman GM**, Stribley JM: Apoptosis in Human Uterine Leiomyomas. *Sem Repro Med* 22: 91-103, 2004
- 4.) Ciarmela P, Ciavattini A, Giannubilo SR, Lamanna P, Fiorini R, Tranquilli AL, **Christman GM**, Castellucci M. Management of leiomyomas in perimenopausal women. *Maturitas* 78(3):168-173, 2014