

Regulation of Angiogenesis and Renin Expression in Rats

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A myriad of physiological data confirms that renin is a critical component of the normal angiogenesis response seen in skeletal muscle with electrical stimulation. Using SS-13^{BN}/Mcwi (SS-13^{BN}) consomic rats and a series of congenic rats, we have demonstrated that restoration of a small region surrounding the renin gene confers normal renin levels and restores the normal angiogenic phenotype in the Dahl S (SS) rat. Despite this data, no difference has been observed in the coding region or the classically defined promoter region of the renin gene that would explain the differences in expression. Therefore it is the goal of this project to determine the sequence variants in the region, demonstrate which of these variants impact renin gene regulation *in vitro*, and using a transgenic approach, demonstrate that this candidate sequence variant eliminates normal renin regulation and the angiogenic phenotype in a subcongenic rat.

The project utilizes technologies developed as part of the Wisconsin CEGS to identify regulatory proteins binding to putative regulatory regions of the renin gene, and examine the impact of sequence variants on this DNA-protein interaction.

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