Pediatrics chair awarded $3.1 million to study congenital kidney disease

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December 09, 2025 4:57 PM

Samir El-Dahr, MD, is the Chair and Jane B. Aron Professor in the Department of Pediatrics at Tulane University School of Medicine.

Dr. Samir S. El-Dahr, chair and Jane B. Aron Professor in the Department of Pediatrics , has been awarded a new $3.1 million National Institutes of Health (NIH) R01 grant from the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). The five-year award provides federal funding to advance research into the molecular and epigenetic mechanisms that regulate kidney development and repair.

Epigenetic regulation is the process by which genes can be turned on or off by certain biochemical methods.

El-Dahr's research lab at Tulane University School of Medicine focuses on understanding the cellular and molecular regulation of kidney development. An abnormality in kidney development occurs in approximately 1 in 500 births, resulting in congenital anomalies of the kidney and urinary tract in children. El-Dahr's research investigates the underlying causes of this phenomenon, with a long-term goal of developing novel therapeutic strategies.

His latest project will examine why the generation of new kidney filters (nephrons) ceases around the time of birth, and why the opportunity to generate new nephrons following congenital or acquired loss of kidney function also ceases. Understanding why nephron progenitors (stem cells) cease to self-renew is key to developing new regenerative therapies. El-Dahr's proposal aims to define how genes are instructed to alter their activity at the end of nephrogenesis, thereby determining the lifespan of nephron progenitors. This knowledge may be translated to optimizing kidney regeneration protocols and understanding the causes of congenital kidney disease.