

# Tools for studying Chronic Kidney Disease Human Renal Fibroblast

DV Biologics is pleased to offer a new product, adult human kidney fibroblasts, a cell model that is suitable for genetics, biochemistry, or toxicology research—fully scalable from bench top to high throughput screening. As an excretory organ in the urinary system, the kidney greatly influences an individual’s well-being by preserving homeostasis through regulating electrolytes, pH, and blood pressure among other control mechanisms. Comprising the majority of interstitial cells in the kidney, renal fibroblasts are responsible for the synthesis of collagen I of the extracellular matrix. Also, renal cortical fibroblasts synthesize erythropoietin, an important glycoprotein hormone that controls the production of red blood cells and renal medullary fibroblasts produce prostaglandins, a class of autocrine or paracrine hormones, which help maintain water and electrolyte homeostasis. Renal interstitial fibrosis, a disorder that may escalate to chronic kidney disease, is often correlated with excessive deposition of extracellular matrix by renal fibroblasts, the regulation of which process is under intensive research. Although animal cell systems have been useful in the study of renal fibroblasts, results need to be confirmed with cellular systems which more closely resemble the human system. DV Biologics’s kidney fibroblasts can be expanded 20+ population doublings (Figure 1), while maintaining their characteristic morphology and molecular markers. Immunocytochemical analysis shows they express markers for fibroblast, FSP1-S100, vimentin and smooth muscle actin, but lack epithelial marker cytokeratin 18, pancytokeratin and PDGFR-B which confirms purity of the fibroblasts (Figure 2). DV Biologics offers a variety of additional cell types for researching renal and digestive systems and associated diseases including liver cells, kidney cells, large intestine cells, and small intestine cells (Table 1).

As research moves away from animal models, it is often challenging for researchers to find cellular models that best represent the human physiological settings. DV Biologics offers an expanding product portfolio of unique cell types and tissue-derived products to help meet that challenge. In addition, we offer an extensive array of biological tools and services which enable researchers to conduct relevant investigation in many fields.

Please refer to our catalog for a comprehensive list of products. If you don’t see the products you are looking for, please contact us. Our team of dedicated scientists is able to customize products to meet your specific research parameters.

Our mission is to provide you with the biological tools needed for the innovation of new technology that will one day be used to treat, or prevent, human degenerative disorders and diseases. All of our products are guaranteed and manufactured under ISO 9001:2008 guidelines.

Figure 1: Growth Curve

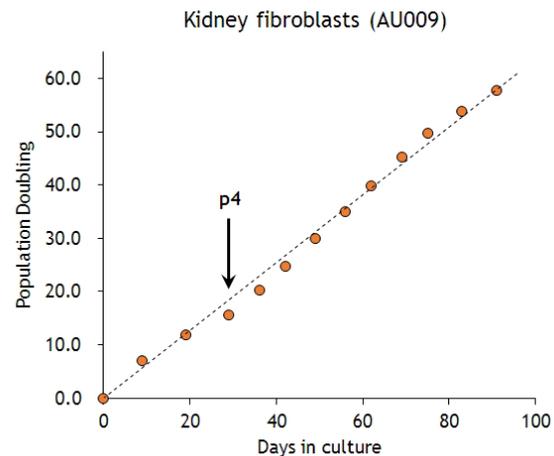
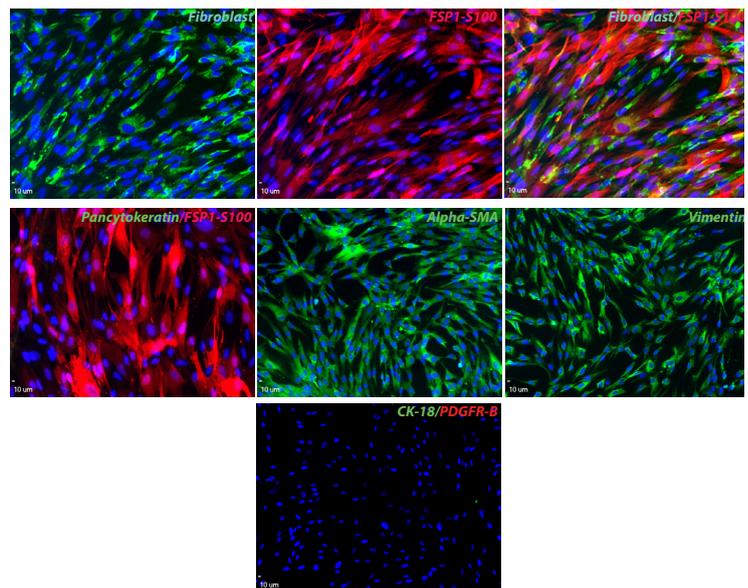


Figure 2: Immunocytochemistry of Adult Kidney Fibroblasts



Samples tested above: Adult Donor 786 and 804. Passages 2, 3, 4, 6

Markers used: Anti-Fibroblast, Anti-FSP1S100, Anti-Pancytokeratin, Cytokeratin 18 (CK-18), Alpha Smooth Muscle Actin (Alpha-SMA), Anti-Platelet-Derived Growth Factor Receptor Beta (PDGFR-B), Vimentin

Positive for: Anti-Fibroblast, Anti-FSPS100, Alpha-SMA, Vimentin

Negative for: Anti-Pancytokeratin, CK-18, PDGFR-B

## REFERENCES

1. Bachmann S, Le Hir M, Eckardt KU. 1993. Co-localization of erythropoietin mRNA and ecto-5'-nucleotidase immunoreactivity in peritubular cells of rat renal cortex indicates that fibroblasts produce erythropoietin. *J Histochem Cytochem* 41:335–341.
2. Muirhead EE, et al. 1972. Production of renomedullary prostaglandins by renomedullary interstitial cells grown in tissue culture. *Circ Res* 30/31:161–172.
3. Strutz F, and Zeisberg M. 2006. Renal fibroblasts and myofibroblasts in chronic kidney disease. *J Am Soc Nephrol*. 17:2992-2998.

Product Description	Unit of Measure	Catalog Number
Kidney Cells (Uncultured)	5 × 10 <sup>5</sup> cells/vial	AU001-F
Cortical Kidney Epithelial Cells	5 × 10 <sup>5</sup> cells/vial	AU003-F
Kidney Fibroblasts	5 × 10 <sup>5</sup> cells/vial	AU009-F
Kidney Cortex Cells (Uncultured)	5 × 10 <sup>5</sup> cells/vial	AU011-F
Kidney Medulla Cells (Uncultured)	5 × 10 <sup>5</sup> cells/vial	AU012-F
Kidney Cells	5 × 10 <sup>5</sup> cells/vial	AU017-F
Fibroblast Cellutions Media	100 or 500ml	I-GRO-001
Epithelial Proconditioned Media	25, 50 or 100ml	D-PRO-001

Table 1:  
List of Kidney Cellular Products and Supporting  
Growth Media.



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### **Ways to Place an Order**

Phone 1.888.773.5959 | Fax 1.877.773.5959  
Email [orders@dvbiologics.com](mailto:orders@dvbiologics.com)

### **Ordering Hours**

Monday through Friday: 9 am - 5 pm PST  
Order anytime by email or fax.  
\*If your order arrives outside our normal business hours, it will be processed the next business day.