



# A/Professor Chrishan Samuel

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Cardiovascular Disease Program

## OTHER PROGRAM AFFILIATIONS



Development and Stem Cells

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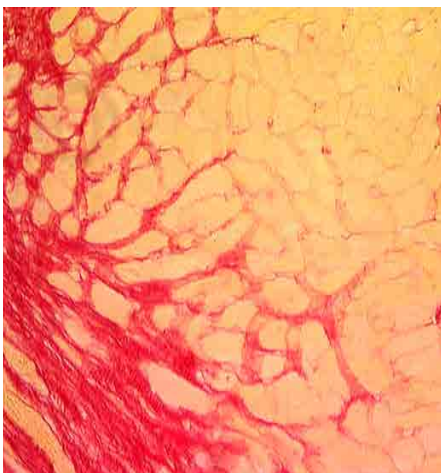
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**WEB** [med.monash.edu/pharmacology/research/fibrosis.html](http://med.monash.edu/pharmacology/research/fibrosis.html)

Fibrosis is defined as the hardening and/or scarring of various organs including the heart, kidney and lung; which usually arises from abnormal wound healing to tissue injury, resulting in an excessive deposition of extracellular matrix components, primarily collagen. The eventual replacement of normal tissue with scar tissue leads to organ stiffness and ultimately, organ failure. Despite a number of available treatments for patients with various heart/kidney/lung diseases, patients receiving these therapies still progress to end-stage organ failure due to the inability of these treatments to directly target the build-up of fibrosis. Hence, novel and more direct anti-fibrotic therapies are still required to be established.

## Research Projects

1. Signal transduction studies (in models of heart / kidney / lung disease)
2. Head-to-head and combination therapy efficacy studies
3. The influence of ageing and gender on fibrosis
4. Development of new approaches to target airway remodelling in asthma



Picrosirius-red stained image of aberrant interstitial collagen deposition (fibrosis) within the mouse left ventricle, 7 days after myocardial infarction

## Selected significant publications:

1. Hossain MA\*, Kocan M, Yao ST, Royce SG, Nair VB, Siwek C, Patil NA, Harrison IP, Rosengren KJ, Selemidis S, Summers RJ, Wade JD\*, Bathgate RAD\*, and **Samuel CS\***. 2016. A single-chain derivative of the relaxin hormone is a functionally selective agonist of the G protein-coupled receptor, RXFP1. *Chemical Science* DOI: 10.1039/c5sc04754d.
2. Huuskens BM, Wise AF, Cox AJ, Lim EX, Payne NL, Kelly DJ, **Samuel CS\***, Ricardo SD\*. 2015. Combination therapy with mesenchymal stem cells and serelaxin effectively attenuates renal fibrosis in obstructive nephropathy. *FASEB J.* 29, 540-553.
3. Royce SG, Moodley Y, **Samuel CS\***. 2014. Novel therapeutic strategies for lung disorders associated with airway remodeling and fibrosis. *Pharmacol Therap.* 141, 250-260.
4. **Samuel CS\***, Bodaragama H, Chew JY, Widdop RE, Royce SG, Hewitson TD. 2014. Serelaxin is a more efficacious anti-fibrotic than enalapril in an experimental model of heart disease. *Hypertension.* 64, 315-322.
5. Chow B, Kocan M, Bosnyak S, Sarwar M, Wigg B, Jones ES, Widdop RE, Summers RJ, Bathgate RA, Hewitson TD, **Samuel CS\***. 2014. Relaxin requires the angiotensin II type 2 receptor to abrogate renal interstitial fibrosis. *Kidney Int.* 86, 75-85.

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