

# Inflammatory pathways could be key to resolving heart disease and depression link

March 24 2016, by Bridgette Whittle

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Heart health scientists are working to establish therapies to combat the physical link between cardiovascular disease and depression.

A team from the South Australian Health and Medical Research Institute's (SAHMRI) Heart Health division started the research late last year and says the link could potentially be caused by inflammatory pathways.

It has been known for several years that the prevalence of depression is high in patients with [cardiovascular disease](#) but the exact cause and specific treatments are yet to be established.

Rates of [major depressive disorder](#) of about 15 per cent have been reported in patients after [myocardial infarction](#) or coronary artery bypass grafting.

SAHMRI Senior Postdoctoral Researcher Belinda Di Bartolo said the inflammation that occurs in the heart as a result of cardiovascular disease could signal inflammatory responses in the [brain](#) and vice versa.

"It can have an effect on the central nervous system that may regulate cytokine levels that have been shown to mediate inflammation in the brain during depression," she said.

"We believe that could be the link between depression and heart disease.

"We need to understand which [inflammatory pathways](#) are involved and identify those that show similar responses in both the brain and the heart.

"Anything that we can identify as being a causative link would be something that could be targeted as a therapeutic strategy."

[SAHMRI opened in late 2013](#) and is in the new Adelaide BioMed City precinct, a \$3 billion tripartite health hub comprising a soon-to-be-completed major hospital, research centres and educational institutions.

The research institute is home to about 600 researchers working across seven sectors that include Heart Health; Infection & Immunity; Aboriginal Health; Mind and Brain; Cancer; Healthy Mothers, Babies & Children; Nutrition and Metabolism.

Dr Di Bartolo said a small team of three or four researchers were working on the project but that number would likely grow as collaborations were developed.

She said the research could potentially have ramifications for thousands of patients worldwide "if we can get to the bottom of it".

"Ultimately if we can identify something involved in both (heart and brain) that can be targeted for treatment we could progress the research further towards clinical trials," Dr Di Bartolo said.

The research is also looking at the influence of the gut and how the bacterial flora there can play a role.

"We're looking at it from a three-fold heart, brain, gut axis and how all three of those inflammatory instigators combine to cause this worsening condition.

"Not only are we looking at the heart and brain response but we are also trying to understand how the gut bacteria can play a role in regulating health and disease with regard to the brain and the gut.

"People are under stress and that can influence gut flora. All of our environmental factors can influence what's going on in our gut and whether or not that can play a role in mediating the [inflammatory responses](#) is something that has been suggested to influence anxiety and depression but whether or not it has an effect on the heart is something that we are trying to understand as well."

Provided by The Lead

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