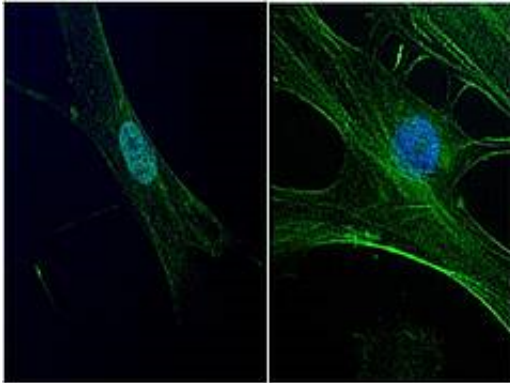


Estrogen protects against cardiovascular disease

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Comparison of prostacyclin receptor (green) levels in a blood vessel smooth muscle cell before (left) and after (right) treatment with estrogen.

(PhysOrg.com) -- UCD researchers led by Conway Fellow, Professor Therese Kinsella have shown that estrogen can protect against cardiovascular disease by impacting the levels of a key protein called prostacyclin receptor. The findings are published today in the *Journal of Molecular Biology*.

Cardiovascular disease, which is the leading cause of [premature death](#) in the Western world, typically develops 10 years later in women than in men. Scientists have long established that the female hormone estrogen protects against the disease but the mechanism of action was unclear.

Professor Kinsella and Dr Elizebeth (Libby) Turner have shown that the prostacyclin receptor is a prime target for estrogen being regulated by the alpha (ER α), but not by the beta (ER β), form of the [estrogen receptor](#) protein. Prostacyclin receptor levels can prevent platelet aggregation, or blood clotting, and the narrowing of vessel walls. As such the protein can play a role in protecting the body from cardiovascular disease.

'We found that prostacyclin receptor levels followed estrogen levels. If estrogen went down, so too did the amount of this prostacyclin receptor', says Professor Kinsella. 'We now have a clear understanding of one of the ways that estrogen may protect against heart disease. This is really significant in its own right, as it opens up new avenues of investigation for treatment of cardiovascular disease in women and it adds considerable information to the whole debate about the potential benefits of [hormone replacement therapy](#) (HRT) for post-menopausal women.'

The Health Research Board funded this project. Commenting on today's publication of the findings, Enda Connolly CEO of the state agency said, '[Cardiovascular disease](#) is the primary cause of death in Ireland.

Approximately 10,000 Irish people die each year from this disease, so a finding like this, which sheds new light into the very core of the disease, has tremendous potential to create new and more effective treatments for patients.'

More information: Estrogen increases expression of the human prostacyclin receptor with the vasculature through an ER α -dependent mechanism. Elizebeth C. Turner and B. Therese Kinsella *J. Mol. Biol.* (2010) 396, 473-486.

Provided by University College Dublin

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