Impaired activity of the protein MTOR a strain on the heart

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A team of researchers, led by Gianluigi Condorelli, at the University of California San Diego, La Jolla, has generated data in mice that suggest that drugs that inhibit the protein MTOR, which are used to treat several forms of cancer, might have adverse effects on heart function in patients with ongoing heart dysfunction.

In the study, it was found that adult mice lacking MTOR in their heart muscle cells developed a fatal heart condition. Disease was associated with accumulation of the protein 4E-BP1, which is an inhibitor of protein generation that is normally held in check by a protein complex containing MTOR.

Further analysis indicated that in a model of high blood pressure the mice lacking MTOR in their heart muscle cells developed heart failure more quickly than did normal mice. Importantly, deletion of 4E-BP1 under these conditions improved heart function and survival.

Thus, decreased MTOR activity impairs the protective heart response to stress, by enhancing 4E-BP1 activity, providing a potential new therapeutic strategy for improving heart function in patients with heart failure and a warning to clinicians using MTOR inhibitors.

More information: www.jci.org/articles/view/4300 … 9037a905ddcd3c581e01