



UNIVERSITY OF JAÉN

Vice-chancellorship of Communication and Institutional Relations

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Atrial fibrillation is associated with gene Pitx2

University of Jaen researchers study the role of this gene in the disease

Scientists at the University of Jaén, led by Professor James Franco Diego, studied the role of the Pitx2 gene in atrial fibrillation. This research, funded by the National Center for Cardiac Research (CNIC), involves two laboratories in Barcelona and two in Madrid, in addition to the collaboration of the Hospital Universitario de Jaén.

This research group has obtained as a result of their study, which was recently published in the journal *Circulation: Cardiovascular Genetics*, that the gene Pitx2 has a role in atrial fibrillation, the most common cardiac arrhythmia in the human population, as between 1 and 3% in the normal population and more than 8% of people over 70 years have it. "We have shown that in patients suffering from atrial fibrillation, the gene is decreased, ie there is less expression," explains Jaime Franco. To continue the study the team is analyzing mice where they have eliminated the gene's function in the heart atria, where arrhythmias occur, and found that during embryonic development there are no major morphological changes, only the atria become more large, but the animal develops normally.

"Through this investigation we have discovered the molecular cascade of Pitx2, and have determined there is a signaling pathway that involves tiny molecules, with only 22 nucleotides, which work without producing proteins and bind to the RNA strands. This allows them to easily enter cells, and therefore can be manipulated and very useful in therapeutic strategies to modulate the function of the heart," adds the researcher. The result of this work is in the process of being patented by the UJA.

From these results derives a paper waiting to be published, which discusses the role of this gene but in the ventricles, which is where an arrhythmia is dangerous, and could be lethal. "From a medical standpoint there is no evidence to link the function of Pitx2 in ventricular arrhythmias, especially since in the case of the disease ventricular arrhythmia is lethal. However, our experimental studies show that Pitx2 plays an essential role in heart electrophysiological control both in the atria and the ventricles," said Diego Franco.



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In the future, this research will improve the life a patient with the disease has. However, the team will keep studying more for in a predictive nature, because so far they have found that there are other risk factors, such as lifestyle, which makes it possible to develop the disease.