Cystic Fibrosis Research News

Title:
A W1282X cystic fibrosis mouse allows the study of pharmacological and gene editing therapeutics to restore CFTR function

Lay Title:
A mouse model containing the W1282X mutation can be used to test cystic fibrosis therapies

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What was your research question?
We set out to create a mouse model containing the rare W1282X CFTR mutation that is carried in some people with CF. There are no currently available therapies that correct CFTR function available to those that carry the W1282X mutation.

Why is this important?
The creation of a mouse model for this W1282X mutation is important to allow the CF research community to test potential therapies. The therapies that may be used for other mutations like G542X, for which there already is a mouse model, may not be appropriate for those that carry W1282X.

What did you do?
In this manuscript, we created the first ever animal model carrying the W1282X mutation. We compared the CF manifestations of this model with the existing G542X model. We also compared CFTR expression function and correction using various potential therapies in cells between the two models.

What did you find?
We found that the W1282X model was similar to the G542X model in CF manifestations, CFTR expression and function. However, the two models differed with their response to therapies

when used on cells. We also showed the potential for using gene editing in cells as we were able to restore CFTR function completing using gene editing in cells.

What does this mean and reasons for caution?

Our findings suggest that even though W1282X and G542X are similar mutations, the research and clinical community should be careful in grouping them together as some therapies may be better to use on one mutation versus the other.

What's next?

This model will allow the community to test potential therapies including drugs that could restore CFTR function as well as gene editing that could also restore CFTR function and reduce CF disease symptoms.

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