

# Concept Clearance:

## Gene Discovery for Common Human Diseases via the Collaborative Cross (CC) Mouse Project

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# Background:

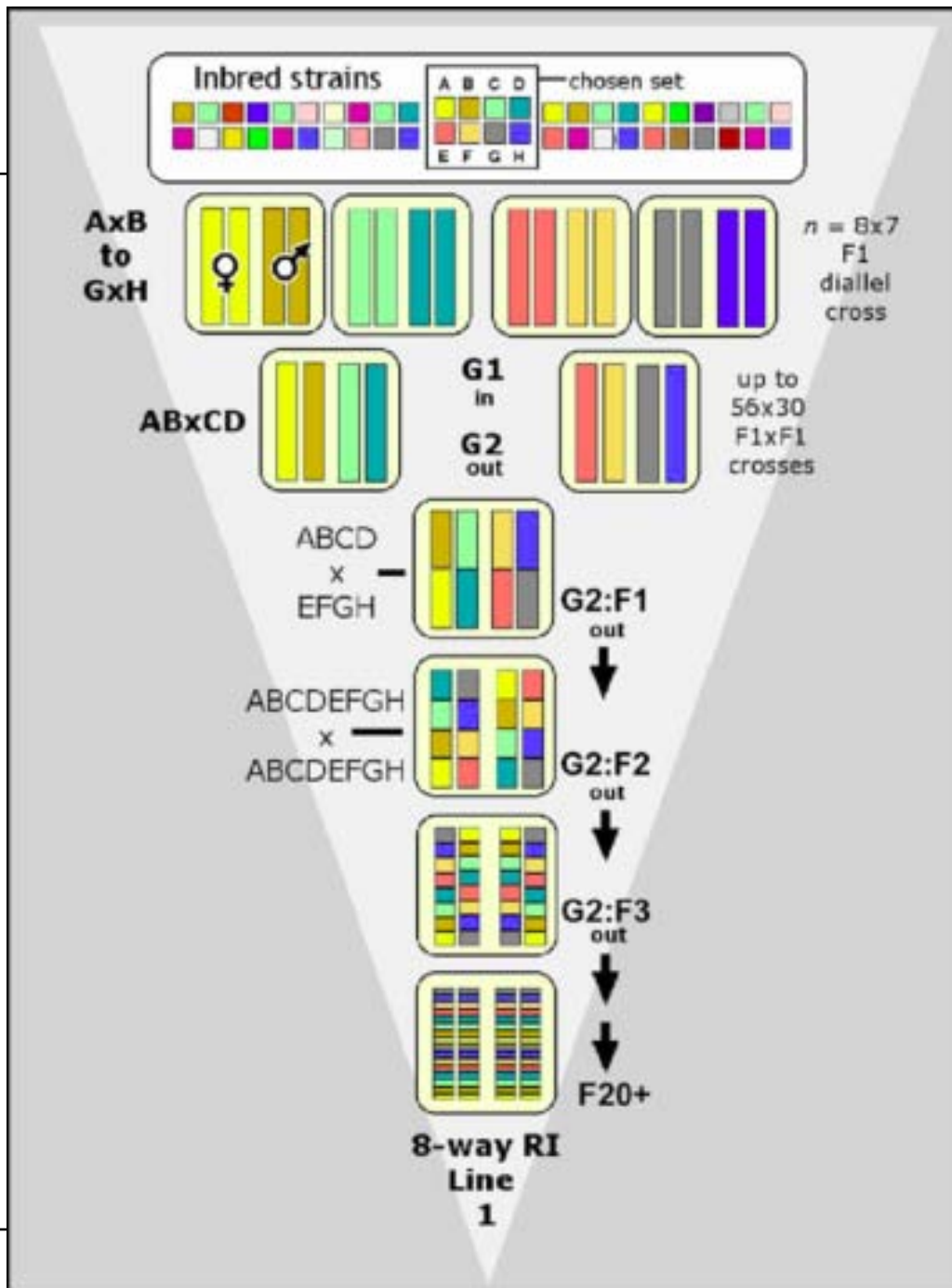
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The Collaborative Cross (CC) represents a mouse panel of up to 1,000 strains made from eight founding laboratory and wild mouse inbred strains. Each strain is isogenic and homozygous at every locus.

The CC mouse strains enable gene discovery for complex diseases that will complement human GWAS studies, and allow challenge studies that can only be done in an animal model.

A DCM-supported resource, part of the Mutant Mouse Regional Resource Centers consortium, distributes the CC strains. In the future, 600 - 1,000 CC lines will become available and would preferably be kept as live lines rather than frozen stocks.

The CC mouse concept:



# Proposal:

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Initiative to fund R01s using CC strains to identify genes that cause human disease with complex genetics.

Initial program - Funding of 5 - 10 R01s for 4 years (\$3 - 6M/yr TC) to increase the use of the CC mouse resource.

Additional NIH ICs may want to participate in this DCM-led Funding Opportunity Announcement. This would result in a larger number of R01s and \$TC/yr.

# Specifics of the R01s to be submitted:

Challenges would include specific diets, exercise regimens, infectious pathogens, among others.

Transcriptomics will be an analytic tool, with results plugged into system biology analyses.

Quantitative differences in mRNA levels, isoforms, and epistatic interactions will be assessed.

Projects aimed at finding druggable molecular targets or identifying biomarkers expected to have clinical utility will be encouraged.

# Questions?