

Transgenic HLA Mouse Models

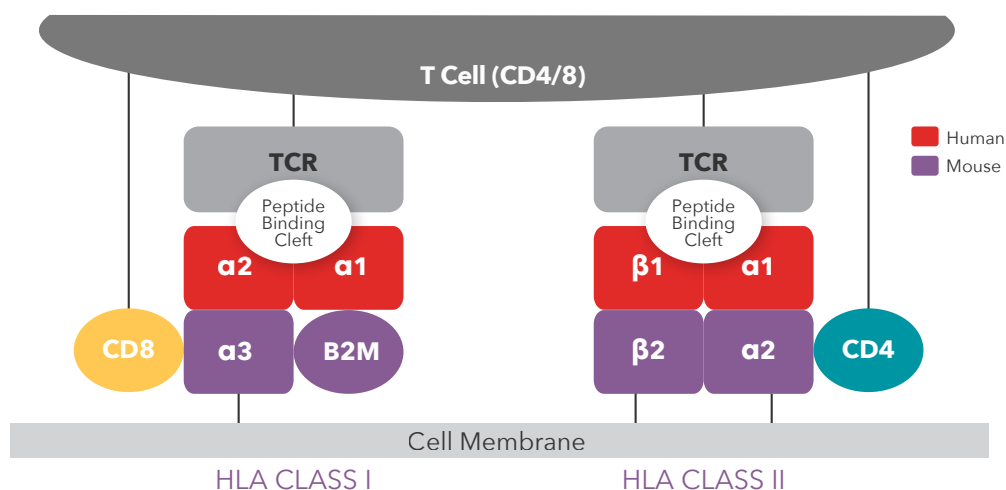
Transgenic mice that express chimeric human HLA molecules represent a unique in vivo experimental model for evaluating human immune system function. Taconic's comprehensive portfolio provides excellent coverage across HLA class I supertypes.

These models can be used to study the role of the human class I or class II-restricted T cell response in autoimmune disease, infectious disease, and vaccine development. They are also valuable tools for immuno-oncology studies, including cancer vaccines.

The Taconic transgenic HLA mouse portfolio is accessible under simple terms for use by non-profit and for-profit users globally, including by contract research organization, without any additional license fees.

IMPORTANCE OF CHIMERIC HLA MOLECULES

Taconic HLA mice express human HLA domains to ensure HLA-restricted antigen presentation while murine MHC domains result in efficient binding to murine CD8/4 and subsequent downstream T cell activation.



KEY APPLICATIONS OF TRANSGENIC HLA MODELS

VACCINE RESEARCH

Transgenic HLA mice are great tools to help identify epitopes or to test vaccine efficacy in challenge studies, and they support rational vaccine design through epitope identification. The models can be used to study T cell responses restricted by HLA molecules. With a broad range of class I HLA supertypes offered in this portfolio, these transgenic HLA mouse strains facilitate the development of vaccines targeted against specific ethnic/regional populations, as well as broad populations. Models in this portfolio have been used in research on immunogenicity and vaccines directed against human lymphocytic choriomeningitis virus (LCMV) infection, HIV, SARS-CoV-2, Dengue, hepatitis B, tuberculosis, toxoplasmosis, and Lassa virus.

IMMUNO-ONCOLOGY

Transgenic HLA mice are used for cancer immunotherapy research. Example applications include identification and validation of HLA-restricted tumor epitopes, mechanistic and efficacy studies utilizing syngeneic tumor lines expressing tumor antigens, and research into cancer vaccine and cell therapy approaches (ACT, TIL therapies, CAR-T and more).

AUTOIMMUNE DISEASES

HLA models have proven to be important tools in the study of autoimmune disease, since certain HLA types are associated with autoimmune diseases. For example, HLA-DR4 is associated with rheumatoid arthritis and multiple sclerosis. Abb Knockout/Transgenic HLA-DR4 mice are susceptible to experimentally allergic encephalomyelitis (EAE), arthritis, and induced connective tissue disease.

INFECTIOUS DISEASES AND BIOTERROR AGENTS

Transgenic HLA models may be used to study human T cell response to infections to help elucidate if, and how, a protective response is initiated. For highly pathogenic emerging infections and bioterror agents, access to infected or immune human patients is sometimes not possible. Use of predictive algorithms in combination with in vivo experiments in transgenic HLA mice permits epitope identification without having to manipulate dangerous pathogens, or having access to human donors. The models have been used in the study of arenaviruses, HIV, poxviruses, and hepatitis B.

ORDERING INFORMATION - Exclusively Available From Taconic Biosciences

Class I HLA Models		
	C57BL/6 model #	CB6F1 model #
HLA-A1	8909	9662
HLA-A11	8907	9660
HLA-A2.1	8906	9659
HLA-A24	8910	9663
HLA-B7	8908	9661
HLA-B44	8911	9664
Class II HLA Model		
Abb Knockout / HLA-DR4	4149	
Visit taconic.com/hla for more information on individual models or to schedule a consultation on HLA models		

RELEVANCE OF GENETIC BACKGROUND AND PRESENCE OF MOUSE MHC

Taconic offers the class I HLA models on two genetic backgrounds, the inbred C57BL/6 strain background as well as an F1 background generated through crossing BALB/c females to C57BL/6 males (CB6F1). The CB6F1 versions have been used widely and are recommended for most applications, including vaccine research and general epitope identification. The C57BL/6 versions are recommended specifically for syngeneic tumor studies utilizing C57BL/6-derived tumors and for crossbreeding to other GEM lines on the C57BL/6 background. Inquire regarding crossbreeding rights. The expression of mouse MHCs in these strains contributes to the generation of a sufficiently broad T cell repertoire and maintains tonic stimulation of mouse T cells by self MHCs.

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CUSTOM CROSSES

Custom crosses to combine multiple HLA transgenes into a single model, cross to an immunodeficient background or to other genetically engineered strains are available. Please inquire for options.

SCIENTIFIC SUPPORT

Taconic field applications scientists can consult on study design and model selection, including which genetic background is most appropriate for your application.

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