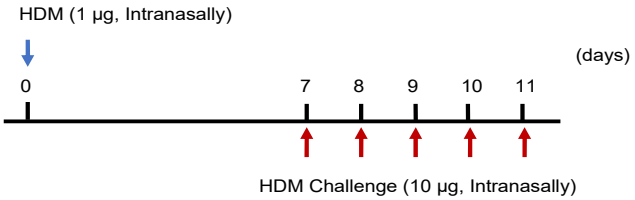
Allergic Diseases: HDM-Induced Asthma

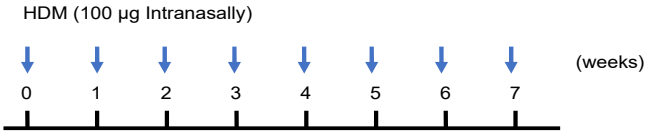
Allergies against house dust mites (HDM), a common aeroallergen, are observed in up to 85% of asthmatic patients worldwide. HDM is an immunologically complex antigen which activates both innate and adaptive immune responses (1). Moreover, it was reported that proteinases in HDM, such as trypsin-like enzymes, promoted allergenicity to proteins and can initiate allergic reactions (2). To facilitate allergic asthma research, Chondrex, Inc. provides HDM extracts as clinically relevant allergens to induce mouse asthma models that mimic how asthmatic patients are sensitized with aeroallergens. In addition, Chondrex, Inc. also provide anti-HDM antibody ELISA kits to evaluate these mouse models. For more information about these products, please contact support@chondrex.com.

General Protocols for Inducing Asthma in BALB/c Mice

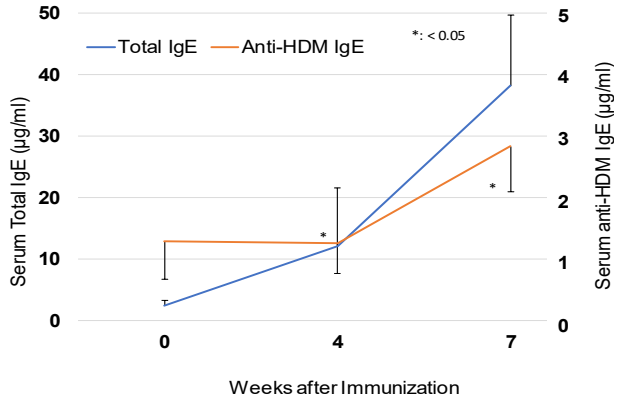
1. Acute Asthma Model



2. Chronic Asthma Model

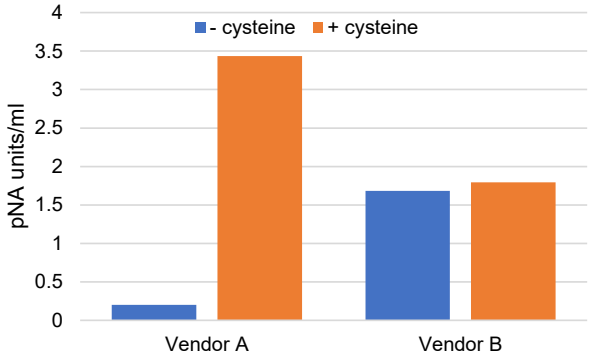


A Chronic Asthma Model



Six BALB/c mice received 150 μg HDM mixed with 0.2 mg Aluminum Adjuvant by weekly IP injections. Serum total IgE levels at weeks 4 and 7 were significantly higher than those at week 0 (blue). In addition, anti-HDM IgE levels were significantly higher at week 7 (orange) than they were at week 0 and 4.

Der p1 Associated Trypsin Activity in HDM



Trypsin activity in HDM from two vendors were compared. Vendor A's HDM showed high trypsin activity with cysteine activation, indicating that it contains high levels of cysteine proteinases, such as Der p1. On the other hand, cysteine treatment did not activate Vendor B's HDM, possibly due to interfering trypsin activity from other serine proteinases, such as Der p3.

References

1. L. Gregory, C. Lloyd. Orchestrating house dust mite-associated allergy in the lung. *Trends in Immunology* **32**.9: 402-411 (2011).
2. M. Reithofer, B. Jahn-Schmid, Allergens with Protease Activity from House Dust Mites. *IJMS*. **18**, 1368–9 (2017).

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House Dust Mite Related Reagents*

Products	Quantity	Catalog #
House Dust Mite Extract from *D. pteronyssinus*	0.6 mg, lyophilized	3033
House Dust Mite Extract from *D. farinae*	0.6 mg, lyophilized	3040
Extract from *Acarus siro*	0.6 mg, lyophilized	3102
House Dust Mite Extract from *D. pteronyssinus* - Biotinylated	0.1 mg, lyophilized	3045
House Dust Mite Extract from *D. farinae* - Biotinylated	0.1 mg, lyophilized	3044
Extract from *Acarus siro* - Biotinylated	0.1 mg, lyophilized	3103
Lipopolysaccharide (LPS) from *E. coli* O111:B4	0.5 mg/ml x 5 ml	9028

*Individual monoclonal antibodies against HDM are also available. Please visit www.chondrex.com for more information.

Mouse Anti-Mite Antigen Antibody and Total Immunoglobulin ELISA Kits

Antibody Subtype Assay Kit	Catalog # Anti-HDM *D. pteronyssinus*	Catalog # Anti-HDM *D. farinae*	Catalog # Anti-Der p 1	Catalog # Anti-Der p 2	Catalog # Total Immunoglobulin	Catalog # Anti-*Acarus siro*
IgG	3030	3072	3047	3065	3023	3097
IgG1	3034	3073	3048	Coming soon!	3025	3098
IgG2b	3035	3074	Coming soon!	3066	3027	3105
IgM	3036	3076	3049	3068	3024	3100
IgE	3037	3081	Coming soon!	Coming soon!	3005	Coming soon!
IgG2a	3038	Coming soon!	Coming soon!	3067	3026	3099
IgG3	3039	3075	3064	Coming soon!	3028	Coming soon!
IgA	3046	Coming soon!	Coming soon!	Coming soon!	3019	Coming soon!

Mite Allergen Detection ELISA Kits

Product	Catalog #
House Dust Mite (Der p 10 & Der f 10) Detection Kit	6031
House Dust Mite (Der p 1) Detection Kit	6044
Acarus siro Detection Kit	6050

Other Reagents

Product	Catalog #
Trypsin Activity Assay Kit	3043
Cysteine Activity Assay Kit	3101
Mouse Mast Cell Protease 1 (MCPT-1) Detection Kit	6046