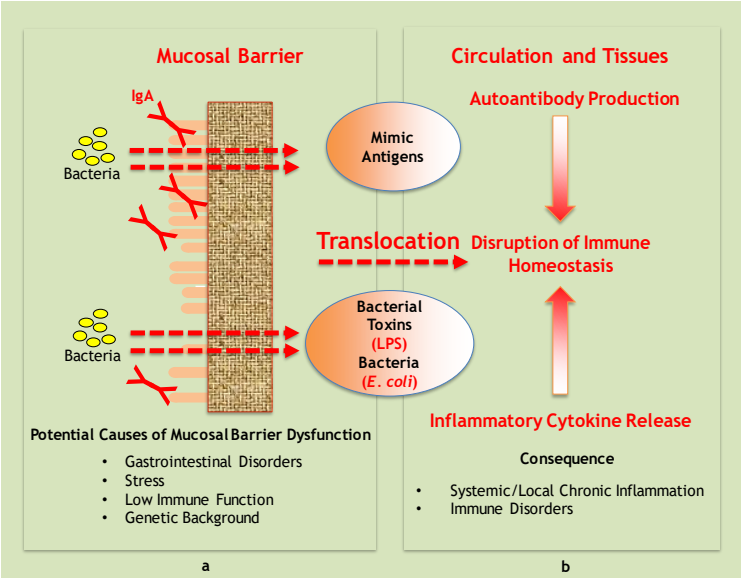
Evaluate Mouse Immune Function

The translocation of intestinal bacteria and their toxins may be a significant contributing factor in the pathogenesis of autoimmune diseases (Figure 1). However, this hypothesis has not been extensively investigated due to the lack of tools. Chondrex, Inc. introduces a new line of research tools (Table 1) to aid researchers in examining the possible link between pathogenic intestinal bacteria and autoimmune diseases such as Crohn's Disease, Chronic Fatigue Syndrome, Ulcerative Colitis, and Rheumatoid Arthritis.

Because *E. coli* O111:B4 is not a natural resident in specific pathogen free (SPF) mouse guts, inoculation (i.e. immunization, oral feeding) of this bacteria or its LPS results in antibody production, representing a potential correlation with immune function. Please contact Chondrex, Inc. at support@chondrex.com if you are interested in evaluating the antibody response to a specific bacteria or its toxin.

Figure 1



Pathogenic Environmental Factors and the Possible Contribution to Autoimmune Diseases

Various factors can disrupt the mucosal barrier function (a). As a result, pathogenic intestinal bacterial components (mimic antigens) and their toxins can cross the mucosal barrier into the surrounding tissues and circulation, thus disrupting the immune system's homeostasis (b).

Product	Catalog #
FITC-labeled Dextrans - 4 kDa/40 kDa	4013/4009
TRITC-labeled Dextran - 70 kDa	4014
D-Xylose Assay Kit	6601
LPS from *E. coli* O111:B4	9028
Mouse Anti–*E. coli* LPS & *E. coli* IgG Antibody ELISA Kits (IgG,IgG1,IgG2a,IgG2b)	6106/6206/6107/6207/6110/6210/6111/6211
Mouse Anti-*E. coli* IgM & IgG3 Antibody ELISA Kits	6209 & 6212
Mouse Anti-P. *gingivalis* & PG-LPS Antibody ELISA Kits (IgG, IgM, IgG3)	6222 – 6227
Mouse Anti-SEA & SEB Antibody ELISA Kits (IgG,IgG1,IgG2a,IgG2b)	6214 – 6221
Human Anti-Bacteria & Toxins Antibody ELISA Kits (IgG & IgA)	6113 – 6128
LPS (from *E. coli* O111:B4) Detection ELISA Kit	6039

Evaluate Human Immune Function

The immune system is a key system which protects the body against hazardous foreign substances. Functions of the immune system can be monitored by evaluating antibody responses to foreign antigens. However, immune function is affected by a variety of exogenous environmental agents (e.g. infectious bacteria and viruses), drugs (e.g. immunosuppressants and immunomodulators), and intrinsic factors (e.g. stress, GI disorders, and aging associated with immuno-senescence). The consequences of a lowered immune function may increase susceptibility to health risks such as disease-causative pathogens (1-3).

To measure immune function, Chondrex, Inc. provides antibody ELISA kits to determine IgA and IgG antibody levels to various types of pathogenic and non-pathogenic environmental factors (Table 1). These ELISA kits employ the ChonBlock™ buffer system, which eliminates non-specific reactions caused by immunoglobulins in indirect ELISAs to provide accurate assay results. Chondrex, Inc. also provides ChonBlock™ buffer for in-house use for individual assays (Table 2). Please contact Chondrex, Inc. for more information at support@chondrex.com.

Table 1. Human Antibody Assay Kits

	Product	Antigen	Catalog # (IgG/IgA)
Bacteria	Human Anti-*E. coli* Antibody Assay	*E. coli* (O111:B4): Heat Killed	6115/6116
	Human Anti-*Lactobacillus* Antibody Assay	*Lactobacillus casei*: Heat Killed	6121/6122
	Human Anti-*Salmonella* Antibody Assay	*Salmonella*: Heat Killed	6125/6126
	Human Anti-*P.Gingivalis* Antibody Assay	*Porphyromonas Gingivalis*: Heat Killed	6119/6120
	Human Anti-Yeast Extract Antibody Assay	Soluble protein from autolyzed yeast	6127/6128
Bacterial Toxins & Cell Components	Human Anti-LPS Antibody Assay	LPS from *E. coli* (O111:B4)	6113/6114
	Human Anti-PG-LPS Antibody Assay	LPS from *Porphyromonas gingivalis* (PG-LPS)	6117/6118
	Human Anti-PG-PS Antibody Assay	Proteoglycan Polysaccharides (*Streptococcus pyogenes*)	6213/6214

Table 2. ChonBlock™ Buffer System

ChonBlock™	Description	Catalog #
Blocking/Sample Dilution Buffer	• Blocks hydrophobic binding of immunoglobulins to plastic surfaces • No immunological and biological activity • No interference with coated antibodies and coated antigens	9068
Detection Antibody Dilution Buffer	• Blocks hydrophobic and ionic binding of detection antibodies to plastic and coated antigens • Reduces edge effect	90681

References

1. K. Terato, C. T. Do, H. Shionoya, Slipping through the Cracks: Linking Low Immune Function and Intestinal Bacterial Imbalance to the Etiology of Rheumatoid Arthritis. *Autoimmune Diseases*. **2015**, 636207 (2015).
2. K. Katayama, T. Matsuno, T. Waritani, K. Terato, H. Shionoya, Supplemental treatment of rheumatoid arthritis with natural milk antibodies against enteromicrobes and their toxins: results of an open-labelled pilot study. *Nutr J.* **10**, 430 (2011).
3. K. Terato *et al.*, Contribution of bacterial pathogens to evoking serological disease markers and aggravating disease activity in rheumatoid arthritis. *PLoS ONE*. **13**, e0190588 (2018).