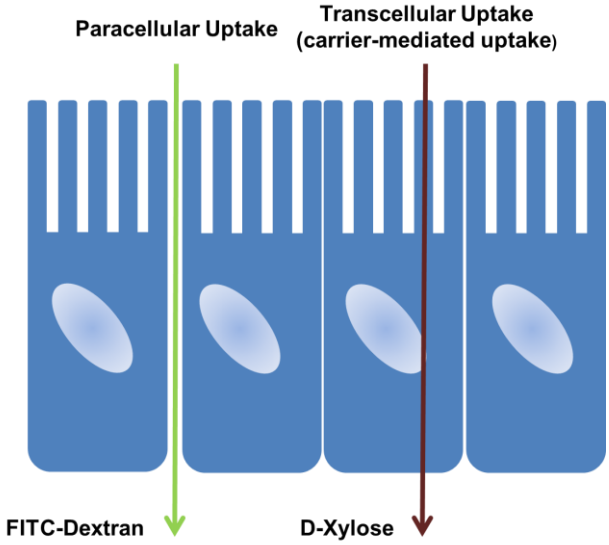
Kits & Reagents for Permeability Evaluation

A properly functioning intestinal barrier system is critical to maintain host health, while a breakdown of this barrier has been implicated in various diseases such as intestinal bowel disorders, diabetes, chronic fatigue syndrome, and chronic heart failure (1-4). In addition, the absorption of biopharmaceutical drugs is also dependent on the mode of transport in the intestinal barrier system (5).

In general, passage of molecules from the gut into the body occurs either in between the cells or through the cells, paracellulary or transcellulary, respectively. Fluorescent-labeled dextrans provide a simple and reliable method for evaluating the paracellular permeability of semi-permeable membranes *in vitro* and *in vivo*. Alternatively, D-xylose is used to measure transcellular permeability, more specifically passive carrier-mediated uptake in the small intestine where absorption occurs. Chondrex, Inc. provides Fluorescein Isothiocyanate (FITC)-dextran, Tetramethylrhodamine (TRITC)-dextran, and a D-xylose assay kit for the evaluation of semi-permeable membranes *in vitro* or *in vivo*. For more information about these products, please contact Chondrex, Inc. at support@chondrex.com.



Product*	Quantity	Catalog #
FITC–labeled Dextran - 4 kDa	25 mg/ml x 5 ml	4013
FITC–labeled Dextran - 40 kDa	25 mg/ml x 5 ml	4009
TRITC–labeled Dextran - 70 kDa	25 mg/ml x 5 ml	4014
D-Xylose Assay Kit	1 kit	6601

*Chondrex, Inc. provides more sizes of FITC-dextrans and fluorescent probes beyond what is listed here. For more information, please contact support@chondrex.com or visit www.chondrex.com.

References

1. M. Coskun. Intestinal epithelium in inflammatory bowel disease. *Front Med (Lausanne)* **1**, 24 (2014).
2. P. D. Cani *et al*. Changes in gut microbiota control metabolic endotoxemia-induced inflammation in high-fat diet-induced obesity and diabetes in mice. *Diabetes* **57**, 1470-1481 (2008).
3. M. Maes *et al*. Increased serum IgA and IgM against LPS of enterobacteria in chronic fatigue syndrome (CFS): indication for the involvement of gram-negative enterobacteria in the etiology of CFS and for the presence of an increased gut-intestinal permeability. *J Affect Disord* **99**, 237-240 (2007).
4. A. Sandek *et al*. Altered intestinal function in patients with chronic heart failure. *J Am Coll Cardiol* **50**, 1561-1569 (2007).
5. K. Sugano *et al*. Coexistence of passive and carrier-mediated processes in drug transport. *Nat Rev Drug Discov* **9**, 597-614 (2010).