



## Intestinal Permeability

The Intestinal Permeability (IP) test, also referred to as a “leaky gut” test, is a precise and non-invasive method for assessing gastrointestinal mucosal integrity. Damage to the lining of the gastrointestinal tract (small and large intestine) is common in people with conditions such as food sensitivity and food allergy, irritable bowel syndrome, Crohn's disease, arthritis, coeliac disease, and dermatological conditions such as eczema, psoriasis and acne.

The lining of the gut wall is often subjected to a wide variety of insults from substances such as alcohol, caffeine, spices, medicines, and environmental chemicals. The impact of chronic stress may also affect the permeability of the gut wall over time. Correcting the altered permeability may have an immediate effect on the relief of symptoms and facilitate the gradual improvement in the underlying condition. The IP test is a challenge test using Lactulose and Mannitol – Note: neither of these sugars contain lactose.

### **Test Kit**

Once the practitioner has given the patient their request form, the patient can order their test kit online at [www.clinicallabs.com.au/shop](http://www.clinicallabs.com.au/shop). The test kit contains full instructions.

### **Specimen Requirements**

- One urine specimen taken from a six hour urine collection. The test kit provided contains everything required to complete the test.

### **Patient Preparation**

- Patients must fast from 10:00pm the evening before the urine specimen is collected (water may be consumed during this period)
- Completely empty the bladder before starting urine collection
- Avoid all foods containing fructose, all analgesics and Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) during the 6 hour collection as these may interfere with test results.
- Do not collect urine during menstruation
- Drink one (1) glass only of water or other fluids during the testing period.

### **Children**

This test is suitable for children between the ages of 4-12 years. Lactulose and Mannitol solutions must be halved for children undertaking IP testing.

### **Turnaround Time**

The standard turnaround time for this test is 10-14 business days from the date the patient's specimen/s are received by our laboratory.

### **Test Results**

Patient results are delivered via electronic download unless requested otherwise. Results can also be issued via hardcopy, fax, or web based e-viewer.

### Technical Support

All Australian Clinical Labs Functional Pathology tests are accompanied by an interpretive guide to assist practitioners in their clinical understanding and patient management for each result. Australian Clinical Labs Functional Pathology also has experienced full time Technical Advisors available for practitioners to discuss appropriate test selection, interpretation of test results, individual cases and other technical matters. Please call 1300 55 44 80 between the hours of 9:00am and 5:00pm AEST or email [csfp@clinicallylabs.com.au](mailto:csfp@clinicallylabs.com.au)

### Companion Tests

- Complete Digestive Stool Analysis (CDSA)
- MyDNA Pharmacogenomic Test
- Secretory IgA (sIgA)

The results of the Intestinal Permeability test may be further supported by additional Australian Clinical Lab Functional Pathology testing. Poor digestive function may contribute to altered gut permeability and be responsible for further damage to the lining of the gastrointestinal tract. The Complete Digestive Stool Analysis (CDSA) provides practitioners with additional information on the many causes of altered gut function and its consequences.

MyDNA Pharmacogenomic testing may also be a useful test to address the potential implications of altered intestinal permeability. Increased permeability may exacerbate high Phase I activity in the liver which, in turn, increases permeability. Therefore, combining the MyDNA test with the IP test will provide a comprehensive overview of the important role the liver may play in terms of efficiency of detoxification and its impact on the health of the lining of the gastrointestinal tract.

Secretory IgA (sIgA) reduces gut permeability and is essential for mucosal immunity, protecting the gut against pathogenic invasion. Combining the sIgA saliva test with the IP test provides comprehensive information on the mucosal integrity of the gut.

### What do the results mean?

The permeation of water-soluble molecules through the intestinal mucosa can occur either through cells (transcellular uptake) or between cells (paracellular uptake). Small molecules (e.g. mannitol) readily penetrate cell and passively diffuse through them. Larger molecules such as disaccharides (e.g. lactulose) are normally excluded by cells. The rate limiting barrier in this case is the "tight junction" between cells. Thus, tight junctions help maintain epithelial integrity.

The Intestinal Permeability test directly measures the ability of two-non metabolised sugar molecules, mannitol and lactulose, to permeate the intestinal mucosa. Lactulose is only slightly absorbed and serves as a marker for mucosal integrity. Mannitol is readily absorbed and serves as a marker for transcellular uptake.

Low levels of mannitol and lactulose indicates malabsorption. Elevated levels of mannitol and lactulose are indicative of general increased permeability and "leaky gut". Permeability to mannitol may decrease, which is indicative to malabsorption of small molecules.

The lactulose/mannitol is a useful parameter. An elevated ratio indicates that the effective pore size of the gut mucosa has increased, allowing access to the body of larger, possibly antigenic molecules.