

Lab No: **993273**

Consulting Pathologist: **Dr D. Dean**

Patient :  
D.O.B. :  
Request Date :  
Date Received :  
Requested by : Mr P DONALD  
Referring Practice : Total Health Central Coast  
Provider No. :  
REFERRING PRACTICE REFERENCE:

### INTESTINAL PERMEABILITY (IP) REPORT

	Within Ref. Range	Outside Ref. Range		Ref. Range
LACTULOSE RECOVERY		0.46 %	<b>Leaky Gut</b>	< 0.30
MANNITOL RECOVERY		6.5 %	<b>Malabsorption</b>	9.5 - 25.0
LACTULOSE:MANNITOL RATIO		0.071		< 0.035

6 Hour Urine Volume 0.450 Litres

#### RESULTS LEGEND

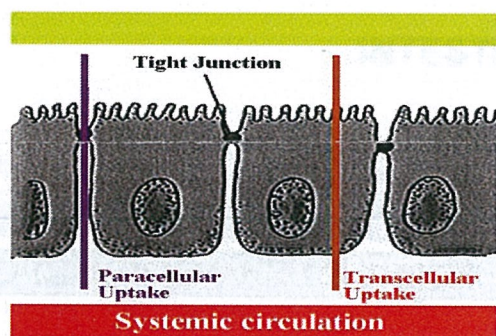
**ND** = Not Detected    **NG** = Not Given    **NAA** = Not Able to Assay

Tests ordered: IP,PP

FINAL REPORT on 19 May 2011 12:44

## INTESTINAL PERMEABILITY Interpretive Guidelines

The penetration of intestinal mucosal barrier appears to correlate with clinical disease. The small intestine has the paradoxical dual function of being a digestive/absorptive organ as well as a barrier to the penetration of toxic compounds and macromolecules. Lactulose is only slightly absorbed through paracellular absorption (between the mucosal cells) and serves as a marker for mucosal integrity and "leaky gut". Increased paracellular permeability allows macromolecules, toxins and antigens to cross the intestinal barrier and is associated with a number of clinical conditions. Mannitol is readily absorbed through transcellular absorption (through the mucosal cells) and serves as a marker for transcellular uptake. Reduced transcellular absorption may be an indicator of malabsorption.



### Conditions associated with Intestinal Permeability

Inflammatory Bowel Disease	Autism
Malnutrition - Malabsorption	Coeliac Disease
Accelerated Ageing	Chemotherapy
Crohn's Disease	Inflammatory Joint Disease
Ulcerative Colitis	Food Allergy
Endotoxaemia	Trauma
Irritable Bowel Disease	Alcoholism
Autism	

### Interpretation of result

Parameter	Interpretation	Treatment Considerations
Lactulose/Mannitol Normal	Repeat challenge after a test meal and if increased lactulose excretion check for food intolerances/food allergy. Begin elimination diet.	
High Lactulose	Mucosal hyperpermeability (leaky gut).	Glutamine, glucosamine, FOS, aloe vera, slippery elm, psyllium, pectin, vitamins A C & E, zinc, selenium, carotenoids, folic acid, essential fatty acids, gamma oryzanol, bioflavonoids
High Mannitol	Mucosal hyperpermeability (leaky gut).	Glutamine, glucosamine, FOS, aloe vera, slippery elm, psyllium, pectin, vitamins A C & E, zinc, selenium, carotenoids, folic acid, essential fatty acids, gamma oryzanol, bioflavonoids (quercetin).
Low Mannitol	Possible malabsorption	Pre and probiotics, glutamine, glucosamine, aloe vera, zinc
High Lactulose/Mannitol Ratio	Increased permeability of the intestinal mucosal epithelium to large, possibly antigenic and inflammatory molecules, i.e., Leaky gut.	Consider possibility of mild inflammatory bowel disease or gluten enteropathy. Also consider exposure to ethanol, NSAIDs, cytotoxic drugs, infection, food allergy, bacterial overgrowth resulting from hypochlorhydria, maldigestion or stasis.

**Note:** Dietary sources of Mannitol consumed during testing may give an increased result. Dietary sources of Mannitol are pumpkin, mushrooms, beetroot, onion, kelp and it is often used as an artificial sweetener in chewing gum and confectionery