

## THE TRANSPORTERS

Serotonin, dopamine, and the amino acids that they are synthesized from do not move in and out of any cells on their own, including the nerve cells of the brain known as neurons.

Transporters are special structures found in the cell wall that move these substances in and out of cells. Transporters are the primary controller and regulator of serotonin and dopamine levels in the synapse. In turn serotonin and dopamine in the synapse is the primary regulator of electricity moving between nerve cells. When electrical needs are beyond the amount of serotonin and dopamine the body can make on a normal diet, an electrical defect occurs, as a relative nutritional deficiency (RND) of serotonin and/or dopamine amino acids nutrients exists which are normally obtained from the diet in adequate amounts.



**Determining the functional status of the OCT2 in one place of the body determines the OCT2 status everywhere else in the body.**

Determine the functional status of the transporters that regulate synaptic serotonin and dopamine levels and you have the key to optimal.



### READ ALL INSTRUCTIONS AND REVIEW MATERIALS IN KIT BEFORE COLLECTION.

- 1 specimen name/date/time label
- 1 urine collection cup
- 1 urine transport tube
- 1 pipette for transferring urine into transport tube
- 1 lab requisition form
- 1 resealable bag
- 1 gauze wrap to wrap specimen tube

**WARNING:** If you missed even one dose of pills in the week prior to testing **DO NOT COLLECT A URINE SAMPLE** since missing pills is the leading cause of an invalid test being submitted.

**WARNING:** If you have had a major stressor the day of collection such as a car accident, unexpected death in the family, unexpected crisis, etc., do not collect a sample. Wait one to two days afterwards to collect a sample. Abnormal stress can lead to abnormally high neurotransmitters in the urine.

### COLLECTION AND HANDLING INSTRUCTIONS

1. Empty bladder 1 to 2 hours before collecting urine sample then drink one 16 oz glass of water.
2. **COLLECTION TIME IS CRITICAL:** Collect the sample **approximately 5 to 6 hours before bed time.** Normally this is just before you take your 4 or 5 PM amino acid dosing. Contact your caregiver if you need clarification on this.
3. Begin to void and collect the mid-stream sample of urine.
4. Transfer urine sample into transfer tube with pipette provided within 1 to 2 minutes of collection.
5. Store the sample at room temperature, do not store specimen in temperatures higher than 120 degrees Fahrenheit.

**Fill out name/date/time label and apply directly to the specimen tube.**

**Unlabeled specimens will not be processed.**

Return specimen with the FedEx shipping materials supplied.

### RETURN INSTRUCTIONS

1. Wrap sample tube in gauze pad provided and place in the small resealable bag.
2. **Completely fill out patient information on requisition form.**
3. Place specimen/ tube and the patient information form in the box provided then place in the FedEx clinic pack. Be sure to seal the top and apply billable stamp to the clinic pack.
4. Take the clinic pack to a FedEx collection box. If you do not have a FedEx collection box close by, call the FedEx 800 phone number to schedule a pick up.



## PATIENT BROCHURE

### OPTIMIZATION OF SEROTONIN AND/OR DOPAMINE IN CLINIC

## Monoamine Transporter Optimization™

One of the most profound and far-reaching advances in laboratory medicine, EVER!™

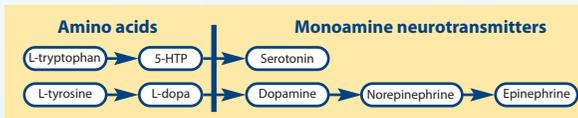


**PERSPECTIVE:** Low or normal but not adequate levels of serotonin and/or dopamine inside or outside of the brain may be associated with many conditions.

Your caregiver has diagnosed one or more of these conditions and has given you this brochure to help you understand this laboratory approach to Monoamine Transporter Optimization (MTO).

This research project has published 16 peer-reviewed original research articles since 2009. See [www.LabDBS.com](http://www.LabDBS.com) for access to these articles.

**The Neurotransmitters Serotonin and dopamine in your body** are primarily made from the L-tryptophan and L-tyrosine found in your food.

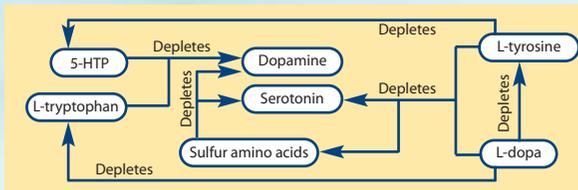


When eating a normal diet with optimal L-tyrosine and/or L-tryptophan intake and there is not enough serotonin and/or dopamine available in your system a "relative nutritional deficiency (RND) exists." This leads to relative nutritional deficiency related symptoms or illness.

Simply taking in more L-tryptophan and/or L-tyrosine may not address the problem since the system only makes limited amounts of serotonin and/or dopamine, from these amino acids.

5-HTP and L-dopa are freely converted into serotonin and dopamine respectively. They need to be given simultaneously in proper balance to prevent complications associated with depletion.

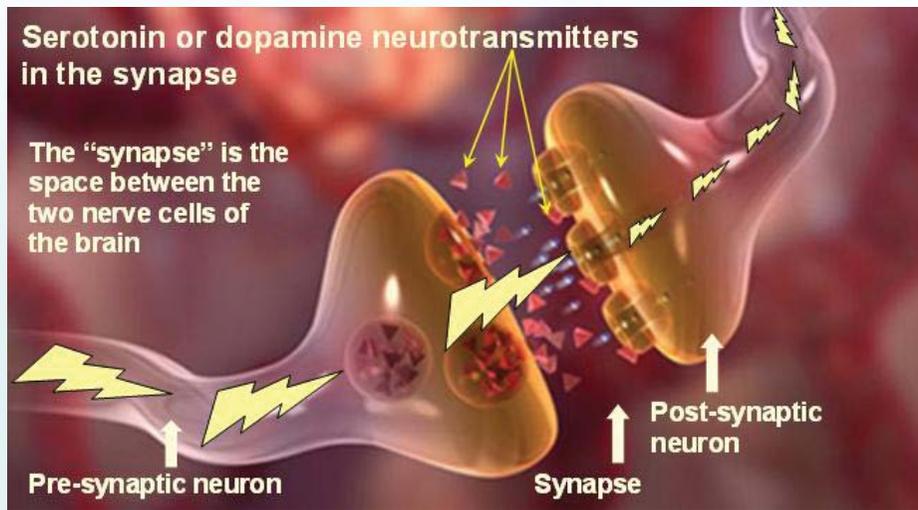
**What is the advantage of this type of laboratory approach? It effectively deals with the depletion problem.**



Administration of improperly balanced amino acids (5-HTP, L-tryptophan, L-tyrosine, and/or L-dopa) may lead to further inadequacy of amino acids, neurotransmitters (serotonin and/or dopamine), and/or sulfur amino acids.

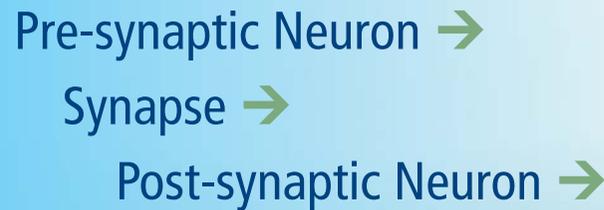
If serotonin or dopamine becomes depleted enough the other neurotransmitter will cease to function no matter how high its concentrations are.

**MTO is the only method available which objectively balances and optimizes serotonin and dopamine based on analysis of information encoded in the serotonin and dopamine reuptake transporters.**



When serotonin and/or dopamine levels in the synapse are low or are normal but not adequate causing compromised flow of electricity through the post-synaptic neuron relative nutritional deficiency symptoms of may develop.

**The flow of electricity in the brain is:**



Suboptimal synaptic levels of neurotransmitters primarily occur for two reasons, when neurotransmitter levels in the synapse are not high enough and/or when there is damage involving the ability of post-synaptic nerve trunks to conduct electricity. The primary cause of chronic electrical dysfunction is damage to the post-synaptic neurons from neurotoxins, trauma, biological and/or genetic considerations.

The pre-synaptic reuptake transporters are the primary determinant of synaptic neurotransmitter levels. This laboratory approach defines the neurotransmitter levels in the system that is required for optimal control of function, and then establishes them.

**Reuptake inhibitors by definition interfere with the normal function of transporters, this method restores optimal transporter function**

