Lab Interpretation LLC

LEAP MRT®
A Superior Approach to Identifying and Treating Adverse Food Reactions

Adverse food reactions are a common and oft times undetected problem for a wide array of clinical conditions. Irritable bowel syndrome, migraine, fibromyalgia, and many other chronic inflammatory or "autoimmune" type diseases often have an immune mediated dietary component that must be appropriately addressed in order to achieve optimal outcomes.

Many physicians believe they have adequate coverage when it comes to identifying trigger foods. ELISA based IgG or IgE testing are the most popular blood tests used by practitioners when immune mediated adverse food reactions are suspected. However, approximately 75% of the dietary reactions in IBS, migraine and fibromyalgia are cell-mediated type IV hypersensitivity.[1-18] So in such cases, IgG and IgE testing *cannot* identify the reactive foods.

In addition, neither IgG nor IgE testing is technologically capable of measuring clinically relevant reactions to food chemicals. If a physician's chosen method of testing does not measure cell-mediated hypersensitivity (or reactions to food chemicals), patient outcomes will frequently be compromised.

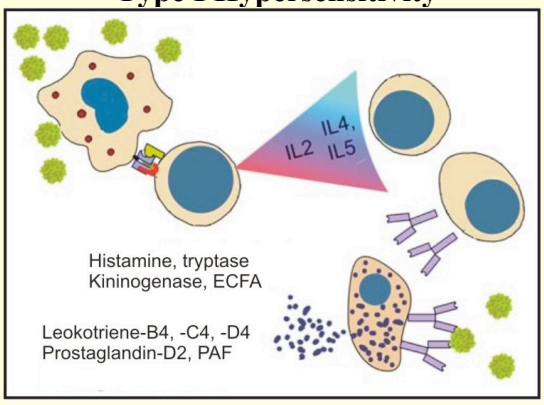
Physicians with experience treating adverse food reactions know that diet can either be the main symptom provoking aspect of a patient's illness, or at the very least a contributing factor.

Common Conditions Where Adverse Food Reactions Have Been Shown To Play A Role:

- Irritable Bowel Syndrome
- Inflammatory Bowel Disease
- Celiac Disease
- Migraine
- Fibromyalgia
- Rheumatoid Arthritis
- Dyspepsia
- Chronic Fatigue Syndrome
- Autism Spectrum Disorders
- ADD/ADHD
- Chronic Otitis Media
- Eczema
- Chronic Urticaria
- Cyclic Vomiting Syndrome

Therefore, elimination of offending substances can either result in complete or partial remission. But to what degree diet plays a role cannot be accurately assessed unless the diet is truly oligoantigenic. Diets based on IgG and/or IgE testing cannot be considered oligoantigenic, as cell mediated reactions have not been identified and duly omitted. The time tested elimination diet (lamb-rice-pear), though tedious, lengthy and poorly complied with, is actually a very effective oligoantigenic method of establishing a cause and effect relationship between the patient's pathology and their diet (as long as the patient isn't reactive to lamb, rice or pear!).

Type I Hypersensitivity

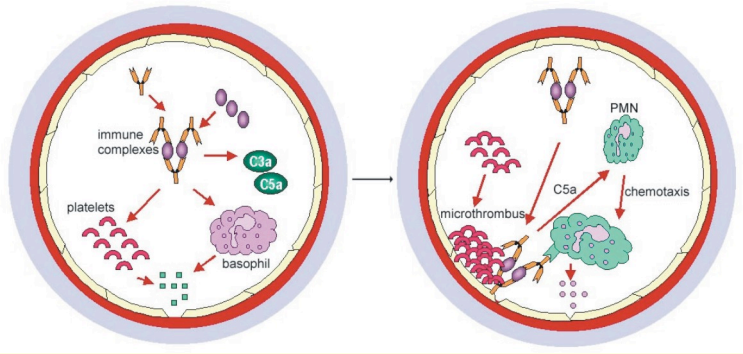


Immune Mediated Food Hypersensitivity

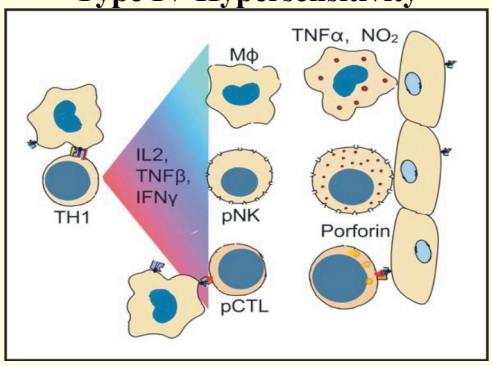
The model of hypersensitivity describes four different immune mediated pathways. In regards to adverse reactions to foods, a thorough literature search reveals evidence for types I, III, and IV, but there is no clear evidence to suggest the involvement of type II reactions.[19]

IgE mediated type I hypersensitivity is typically a straightforward clinical problem affecting approximately 2-4% of the population. After sensitization, food specific IgE is produced and affixes upon mast cells. Upon re-exposure to allergen, mast cells degranulate releasing histamine, prostaglandins, and other proinflammatory mediators. Basophils also have receptor sites for IgE and a similar profile of mediators as mast cells and can degranulate in the presence of allergens.

Type III Hypersensitivity



Type IV Hypersensitivity



Diagnosis of food allergic disease and specific trigger foods tends to be fairly straightforward. In rare instances it can be life-threatening (anaphylaxis). Type I hypersensitivity tends to be stable. Reactions are usually acute, develop quickly and many times are identifiable through a careful history, though in more complex cases allergy testing is warranted.

Compared with type I hypersensitivity, types III and IV are much more common (15-25% incidence) and much more complex from both a clinical and diagnostic perspective.[19] Clinically, reactions tend to be delayed and/or dose dependent and there tends to be many reactive foods and chemicals. In addition, reactions are highly patient specific. Even family members with similar clinical presentations can have significantly different trigger food profiles. Non-IgE mediated hypersensitivity is closely tied to oral tolerance mechanisms, which means reactions tend to be labile.

The diagnostic difficulty lies in the fact that there are multiple potential triggering mechanisms (IgG, IgM, C3a, C4a, T-cells) and multiple potential immune cells (T-cells, NK cells, neutrophils, eosinophils, basophils, monocytes, macrophages, etc.) that can combine in numerous ways to release a tremendous array of proinflammatory and proalgesic mediators (histamine, cytokines, leukotrienes, prostaglandins, etc.). Which specific mechanisms, immune cells and mediators are involved in the patient's pathology cannot be gleaned from clinical presentation.

Comparison of Hypersensitivity Reactions

characteristics	type-I (anaphylactic)	type-II (cytotoxic)	type-III (immune complex	type-IV (delayed type)
Mechanism	IgE	IgG, IgM, Complement	IgG, IgM, Complement	T-cells
Response time	15-30 minutes Late phase - 12 hrs	Minutes-hours	3-8 hours	4-72 hours
Histology	Mast cells Basophils Eosinophils	K cells NK cells Neutrophils Macrophages	Neutrophils Basophils Monocytes Eosinophils	T-cells NK cells Neutrophils Macrophages Basophils Monocytes Eosinophils

LEAP-MRT®: Combining Patented Testing with Clinical Innovation

Understanding that mediator release is the common endpoint of all immune mediated reactions and the most clinically relevant parameter, a specialized blood test has been developed and patented which gives physicians an exceptional tool to quickly identify trigger foods and food chemicals.

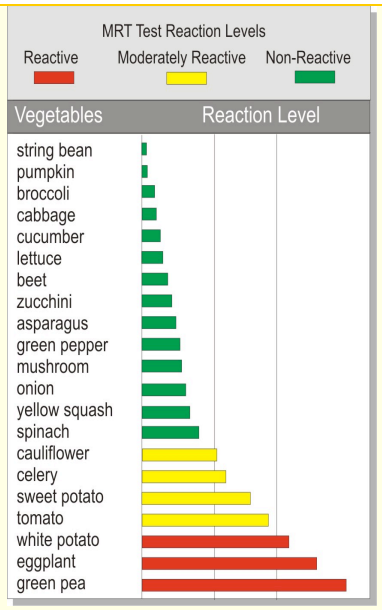
The Mediator Release Test (MRT®) measures the outcome of virtually all non-IgE mediated immune pathways. MRT provides a simple, yet comprehensive solution to a highly complex situation by indirectly measuring mediator release after whole blood has been exposed to and incubated with a food or chemical antigen. This enables MRT to account for both humoral and cell-mediated mechanisms, without being "locked in" to one or the other.[21, 22]

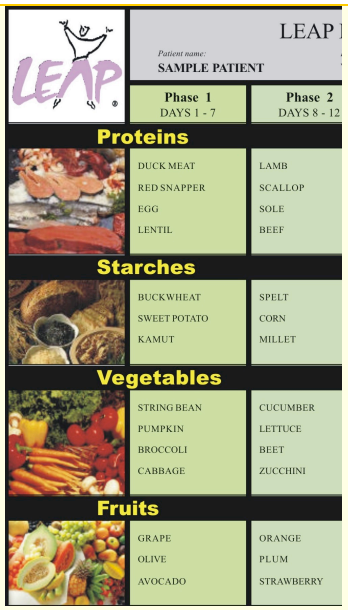
A peer reviewed blinded study has shown MRT to have the highest reported accuracy of any blood test for food sensitivities (94.5% sensitivity, 91.7% specificity).[20] A presentation at the 2004 American College of Gastroenterology Educational and Scientific Symposium reported that not only did LEAP-MRT improve target organ and global

symptoms in IBS patients, but it showed an ability to correlate with in vivo cytokine elevation in IBS patients consuming MRT reactive foods[23].

An important clinical feature of MRT is that it quantifies the strength of each reaction. This allows for an innovative and strategic method of scientifically building a healthy diet. This innovation is called the LEAP ImmunoCalm® Dietary Program.

With LEAP, each patient's eating plan is comprised of a phased reintroduction schedule based on their MRT results. The least reactive foods are introduced in the earliest stages. Additional foods are reintroduced in a sequential fashion based on each food's relative level of reaction. This culminates in a 3-day rotation diet approximately 30 days into the program, after the patient has become accustomed to the dietary lifestyle change.





The LEAP approach has several advantages over other available methods:

1. LEAP uses the most accurate and comprehensive test available for non-IgE mediated immune reactions
2. Initial foods have the highest probability of being tolerated (immunologically speaking).
3. The sequential reintroduction provides the surest method of confirming non-reactivity.
4. It positively focuses the patient on what they should be eating and not just what to avoid.
5. The more difficult aspects of dietary lifestyle change (rotary diet) are introduced after the patient has become accustomed to simple elimination.
6. It provides the patient all the necessary tools to assume full responsibility for this part of their treatment.

When combined and used appropriately, the LEAP approach is a superior method of managing food sensitive patients. LEAP-MRT results in improved patient compliance which leads to optimal outcomes and a practical understanding of the degree to which diet plays a role in the patient's condition.

Mark Schauss Case Study

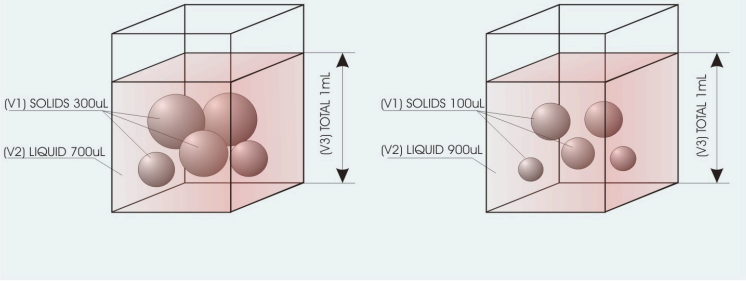
In August of 2005, I was reviewing information sent to me by Signet Diagnostics about their MRT® Food Sensitivity Test and LEAP ImmunoCalm® Dietary Management Program when I decided to try it on my oldest daughter Tasya, who has a severe form of epilepsy. We had tried other food allergy (IgG and IgE) testing with no noticeable improvements in her condition so I was quite skeptical and did not expect much from this test.

Tasya, whose seizure activity was quite debilitating at times (up to 100 atonic "drop" seizures a day), also suffered from uncontrollable temper tantrums whenever she became even slightly frustrated. She would usually have five to seven of these tantrums a week which made it difficult to leave her with a babysitter for any length of time as her behavior could be violent at times. Being familiar with the role of inflammation and behavior, I decided with to try the MRT® Food Sensitivity Test.

In my twenty plus years of work in the field of laboratory test interpretations as well as having run numerous tests on my daughter in hopes of making her life better, I can honestly say that no other test has made as big of an impact on her life than the MRT®. Within five days of eliminating the foods that were most and moderately reactive her behavior took a 360 degree turn for the better. In the year that followed, instead of having five to seven tantrums a week, Tasya had seven total "blowouts", each coming after having one of the offending foods.

The interesting thing about the foods that seemed to cause her the most problems was that they were all foods she craved and ate whenever she could. This is quite consistent with much of the work done on food sensitivities. We also noticed a marked reduction in seizure activity which came as an added bonus, one we were always on the lookout for.

Is the MRT® Food Sensitivity Test and LEAP ImmunoCalm® Dietary Management Program the only test I would recommend for children with epilepsy? Of course not. Is it a test that I would recommend for everyone with a seizure disorder? Absolutely. Anytime you have a disorder like epilepsy that can be helped by lowering pro-inflammatory reactions, a test like MRT® should be part of standard care of a patient looking for a better quality of life.



PRINCIPAL OF MEDIATOR RELEASE TESTING:

V1+V2 = V3 as applied to in vitro antigen challenge of immunocytes where V3 is constant. The instrumentation measures V1 (cellular volume) and V2 (extracellular volume) precisely using patented method of measurement to detect any release of intracellular mediators when antigen is presented. Perceived harmful substances trigger mediator release in associated cells causing a decrease in the V1 solids (cellular) portion and an increase in the V2 liquid (plasma) portion of the tested sample.

Significant reactions are categorized as either Reactive or Moderately Reactive. Non-significant reactions are categorized as Non-Reactive and form the basis for the LEAP ImmunoCalm® Dietary Management Program.

LEAP-MRT®: Frequently Asked Questions:

Does insurance pay for the testing?

Many insurance plans provide coverage for MRT. In order to determine specific coverage for your patient, Signet Diagnostic Corporation (the developers of LEAP-MRT) offers clients complimentary insurance verifications.

How expensive is the testing?

In addition to being the most accurate and comprehensive blood test for food sensitivities, MRT is also one of the most cost effective. Comprehensive food and chemical profiles are available for under $375.

What substances do you test?

Several test panels are available: LEAP-150 (123 foods, 27 food chemicals), LEAP-100 (100 foods), LEAP-80 (60 foods, 20 food chemicals), and the LEAP-30 (30 chemicals).

What type of technical/clinical support is provided?

Toll-free client support is available Monday-Friday from 9:00 am to 6:00 pm EST. For clinicians that wish for more direct clinical patient support, dietary care from fully trained registered dietitians is available. Essentially, a trained LEAP RD will work with your patients over the phone and report outcomes to you after each consultation.

For more information about LEAP-MRT® or to order specimen mailers, contact Lab Interpretation LLC at 775-851-3337.

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