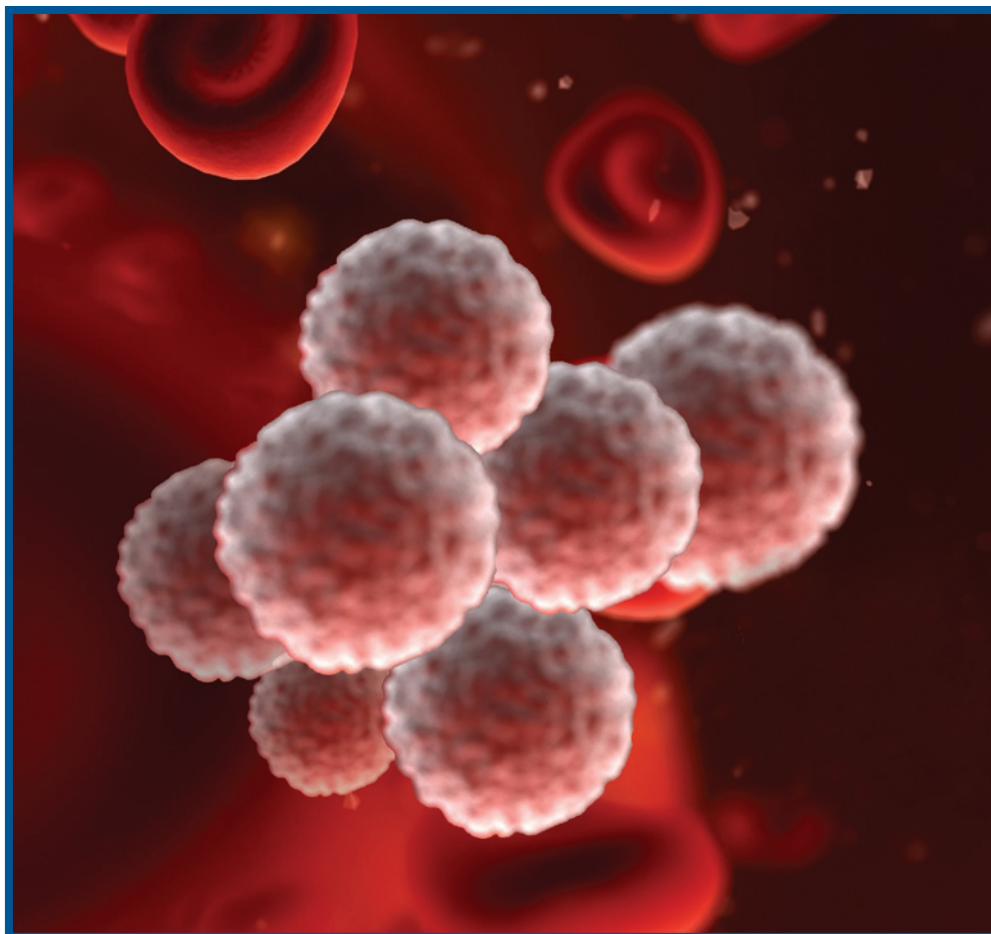


# MELISA<sup>®</sup>

(MEemory Lymphocyte Immuno-Stimulation Assay)



MELISA<sup>®</sup> is the world's leading test system for confirming immune responses to metals and other antigens.



“Technology is moving faster than biology and human evolution. New chemical entities are continuously being introduced to society and increased availability is occurring too rapidly for the human body to adapt. Metals and environmental toxins negatively impact the Neuro-Endo-Immune (NEI) SUPERSYSTEM<sup>®</sup>, which is comprised of the nervous, endocrine, and immune systems. Dysregulation of the immune system is a very likely cause for the increases we are seeing in hypersensitivities and/or autoimmune diseases.”

Gottfried Kellermann, PhD  
CEO NeuroScience, Inc.

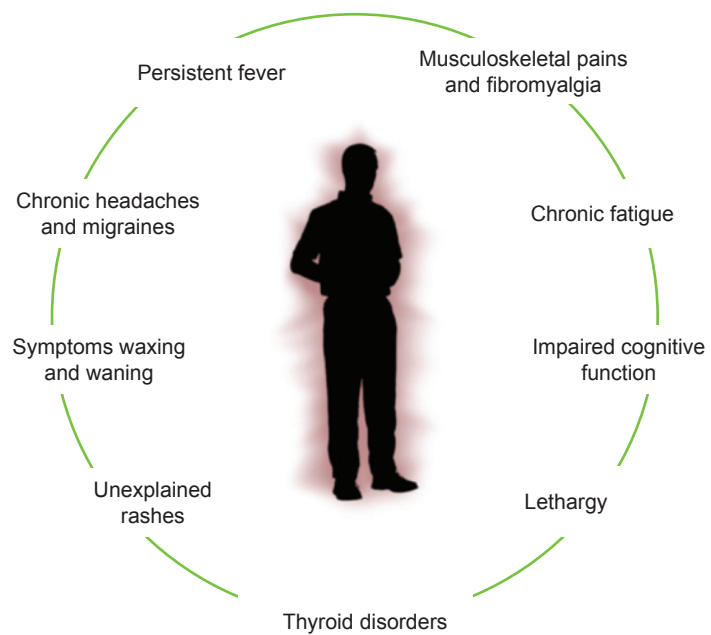
### **Patients are exposed to foreign materials on a daily basis.**

Constant exposure to these foreign materials can lead to an ongoing immune response and chronic inflammation in patients with hypersensitivities.

#### **Common sources of exposure:**

- Dental amalgams and implants
- Cosmetics and jewelry
- Foods and cookware
- Occupations
- Orthopedic and electrical implants
- Vaccinations
- Preservatives
- Thimerosal
- Medications
- Pesticides/organophosphates
- Chronic infectious diseases

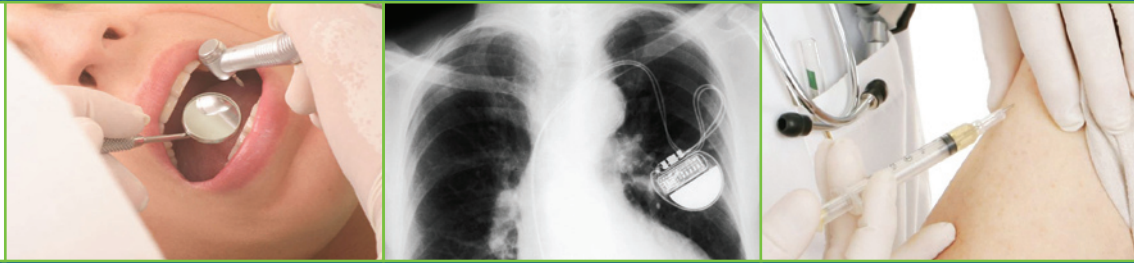
#### **Symptoms of hypersensitivity to foreign materials include:**



#### **Chronic inflammation caused by hypersensitivity can lead to many conditions such as:**

- Psycho-neuro-immunological diseases
- Autoimmune diseases
- Gastrointestinal diseases
- Skin diseases
- Joint problems

**MELISA<sup>®</sup> is the premier test** for identifying hypersensitivity to metals and other foreign materials that may be the root cause of NEI SUPERSYSTEM<sup>®</sup> imbalances.



**MELISA® measures Type-IV delayed hypersensitivity to foreign materials (antigens and pathogens).<sup>1</sup>**

A Type-IV hypersensitivity reaction is mediated by memory T-lymphocytes that have had prior contact with a given antigen.

Not all foreign materials are in easy-to-access locations for measurement (such as hair, nails, and serum). Many foreign materials hide inside cells. Therefore, analysis of foreign material levels in serum or hair can lead to false negative test results.

T-lymphocytes travel throughout the body. While circulating, T-lymphocytes encounter - and remember - even very low levels of foreign materials. Because MELISA® assesses lymphocyte response and identifies memory cell response, the MELISA® test offers higher sensitivity than other tests.<sup>2</sup> Patients who previously tested negative for toxic levels using other methodologies may test positive for hypersensitivity with MELISA®.<sup>3</sup>

**Other Tests Measure Toxicity**

SAMPE TYPE: HAIR, NAILS, SERUM				
Lab#: _____ Patient: Jane Doe Sex: F  Age: 34				
POTENTIALLY TOXIC ELEMENTS				
TOXIC ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE	
			68TH	95TH
Lead	0.6	< 1.0	██████████	██████████
Mercury	0.1	< 0.40	██████████	██████████
			██████████	██████████

**Hair, nails, or serum specimens may show levels of a metal below the official “safe limit”. However, the patient may still be hypersensitive to the metal, which can be determined with MELISA®.<sup>3</sup>**

**MELISA® Detects Hypersensitivity**

NeuroScience Inc. - Report (Jane Doe) Page 1 of 3

Lab Request ID: \_\_\_\_\_  
Generated on 12/9/2009 2:18 PM

**Report Information**

**Health Care Professional**  
Johnny Smith, MD  
456 Yellow Brick Road  
Suite 404  
Any Town, WI 54789

**Patient**  
Jane Doe  
Anywhere Ave  
Any Town, CA 68306

**Gender:** N/A  
**Date of Birth:** Jan 30, 1975  
**Age:** 34 years  
**Phone:** 789-555-1212  
**Wake up time:** 8:00 AM\*

**Order Details** \* wake up time of 8:00 AM is assumed in case time not provided

**Samples received:** November 24, 2009

**Order:** Aluminum (Al), Inorganic Mercury (Hg), Lead (Pb), Methylmercury (MeHg), Nickel (Ni), Thimerosal (C<sub>9</sub>H<sub>9</sub>HgNaO<sub>2</sub>S), Titanium Dioxide (TiO<sub>2</sub>)

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**Test Results**

Individual Parameter(s)

**Metals**

Metals	Result	Scale
Aluminum (Al) <sup>RO</sup>	1.1 Negative	0 2 3 15
Inorganic Mercury (Hg) <sup>RO</sup>	12.3 Positive	0 2 3 15
Lead (Pb) <sup>RO</sup>	9.1 Positive	0 2 3 15
Methylmercury (MeHg) <sup>RO</sup>	1.4 Negative	0 2 3 15
Nickel (Ni) <sup>RO</sup>	>15.0 Positive	0 2 3 15
Thimerosal (C <sub>9</sub> H <sub>9</sub> HgNaO <sub>2</sub> S) <sup>RO</sup>	<1.0 Negative	0 2 3 15
Titanium Dioxide (TiO <sub>2</sub> ) <sup>RO</sup>	1.4 Negative	0 2 3 15

(Sample taken: 11/23/2009, 12:30 PM)

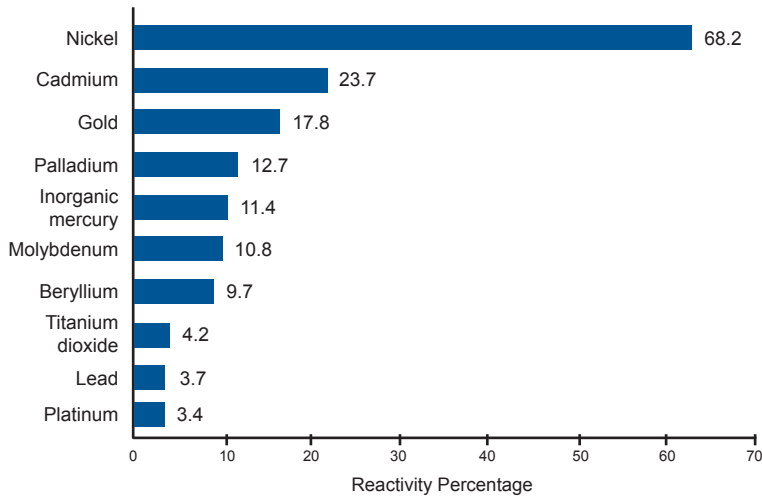
- MELISA® testing:
- Extremely sensitive testing methodology
  - Identifies memory T-lymphocyte response
  - Confirms hypersensitivity reaction to antigens

**There is no such thing as a “safe limit” for hypersensitive individuals.<sup>4</sup>**

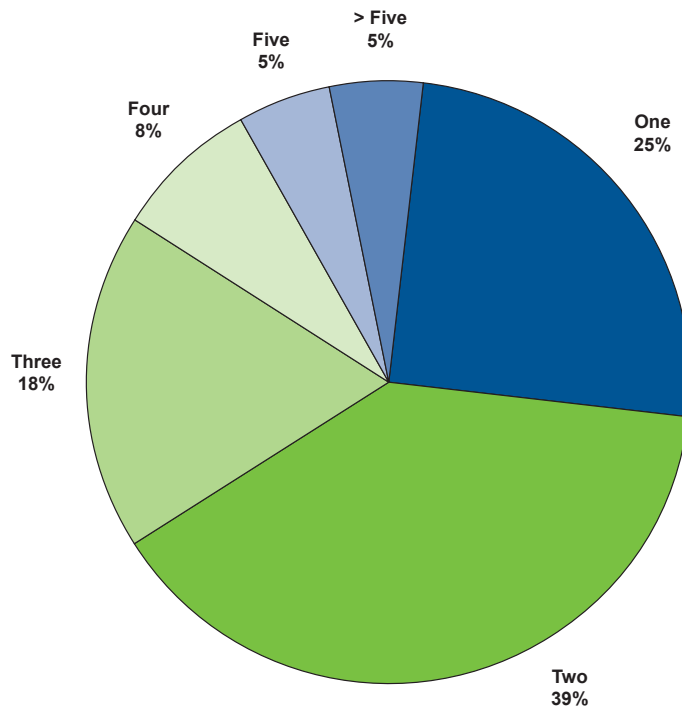
For more information visit [www.neuroscienceinc.com/MELISA](http://www.neuroscienceinc.com/MELISA).



**Frequency of Metal Sensitivity in Symptomatic Patients<sup>1</sup>**  
(In 700 symptomatic patients)



**Patients with Sensitivities to More Than One Metal<sup>1</sup>**



**Metals available for testing:**

- Aluminum
- Arsenic Acid
- Beryllium
- Cadmium
- Chromium
- Cobalt
- Copper
- Ethylmercury
- Gold
- Inorganic Mercury
- Lead
- Manganese
- Methylmercury
- Molybdenum
- Nickel
- Palladium
- Phenylmercury
- Platinum
- Silver
- Thimerosal
- Tin
- Titanium Calcium
- Titanium Dioxide
- Vanadium

**MELISA® - Not just for metal sensitivity testing**

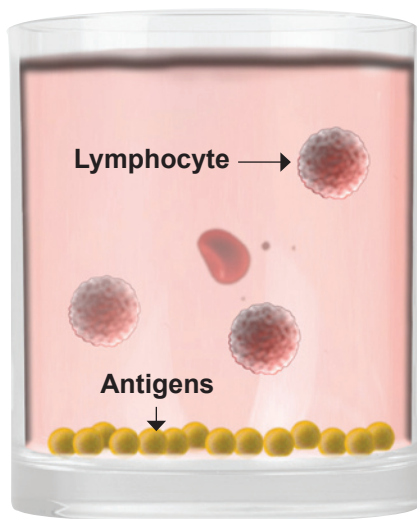
Future applications for MELISA® testing include:

- Pathogens
- Organophosphates
- Preservatives
- Colorings
- Perfumes
- Foods

## How is the test performed?<sup>5</sup>

- White blood cells are isolated from whole blood and tested against the foreign material chosen.
- Test results will indicate if there is a positive reaction and hypersensitivity to a given antigen.
- The level of reactivity and immune response is measured as a Stimulation Index (SI).
- Reactivity confirms previous exposure to an antigen.

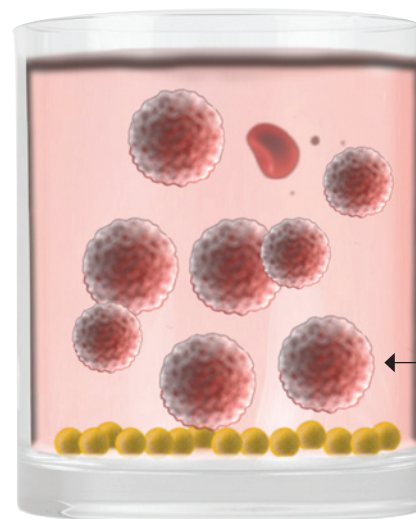
### Introduce White Blood Cells to Antigens



Microplate Well

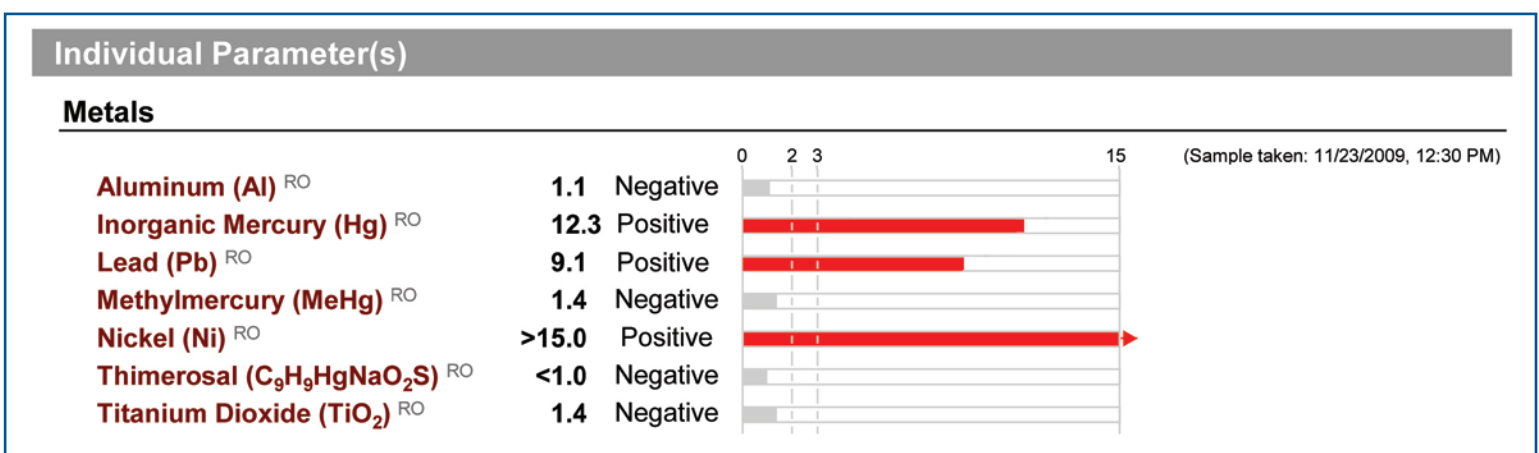
Antigen  
Stimulation and  
Proliferation

### Memory T-Lymphocyte Response



Microplate Well

## T-Lymphocyte Hypersensitivity Response



## References:

1. Valentine-Thon, E., Muller, K., Guzzi, G., Kreisel, S., Ohnsorge, P., and Sandkamp, M. LTT-MELISA is clinically relevant for detecting and monitoring metal sensitivity. (2006) *Neuro.Endocrinol.Lett.* 27 Suppl 117-24.
2. Valentine-Thon, E., Ilsemann, K., and Sandkamp, M. A novel lymphocyte transformation test (LTT-MELISA) for Lyme borreliosis. (2007) *Diagn. Microbiol.Infect.Dis.* 57(1): 27-34.
3. Stejskal, V., Hudecek, R., Stejskal, J., and Sterzl, I. Diagnosis and treatment of metal-induced side-effects. (2006) *Neuro.Endocrinol.Lett.* 27 Suppl 17-16.
4. Prochazkova, J., Sterzl, I., Kucerova, H., Bartova, J., and Stejskal, V. D. The beneficial effect of amalgam replacement on health in patients with autoimmunity. (2004) *Neuro.Endocrinol.Lett.* 25(3): 211-218.
5. Valentine-Thon, E. and Schiwara, H. W. Validity of MELISA for metal sensitivity testing. (2003) *Neuro.Endocrinol.Lett.* 24(1-2): 57-64.





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