



## Micro Trace Minerals Laboratory

40+ years of clinical & environmental  
laboratory diagnostics

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### MTM Newsletter

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#### ■ Laboratory News

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- External Quality Assessment Schemes
- Boric acid as Urine Stabilizer
- Barium in Metal free K2-EDTA Tubes for Whole Blood Collection
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#### Laboratory News

##### ■ FAQ

Clinical laboratories are dedicated to the analysis of human (or veterinary) specimen. The aim is to provide reliable data for the clinical diagnosis, supporting treatment. At MTM, we do not only test samples to provide accurate results, we evaluate and question unusual results, we aim to support your treatment approach and respond to your questions. Here are some excerpts:

##### **Question from Dr. S., MD about urine mercury concentration following the parenteral combination treatment DMPS + NaCaEDTA**

"I have a patient with a supposed mercury burden. We did a challenge test, using the parenteral combination treatment NaCaEDTA and DMPS to achieve optimum results, but the mercury urine concentration following the challenge test was relatively minor. What is your explanation?"

##### Answer:

Our data indicate that combination treatments are not more effective than mono-treatments i.e. the use of one chelating agent only. In fact, combination treatments may, as in this case, affect metal binding negatively.

According to Heyl Co., Berlin, the manufacturer of Dimaval (DMPS), the parenteral application of chelating agents like NaCaEDTA is not advised after or before DMPS.

Administering two chelating agents at the same treatment session, can only be done if a pause of 45 minutes is provided between the administration of the chelating agents. This pause is needed, because the half-life of EDTA as well as DMPS is 45min each. During this time, metal binding is most active.

NaCaEDTA releases calcium to bind metals such as iron or lead. DMPS binds metals with its sulfur groups and has a strong affinity to arsenic and mercury. If NaCaEDTA is administered first, the mercury binding may not take place as it would if DMPS would be administered alone.

Since a mercury burden is suspected, we would recommend to repeat the provocation with DMPS only.



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### Question from Dr. M., ND about Aluminum

Occasionally, I see aluminum levels in baseline urine that are slightly outside the normal range. Should I use an aluminum-specific chelating agent, and if so, which one?

#### Answer:

The aluminum concentration in an unchallenged baseline urine may be due to aluminum intake through food, drink such as cola or mineral water, even medication. Also, the natural aluminum content of food and water depends to a great deal on soil conditions and thus can vary from region to region. However, a healthy renal and digestive system, regulates and balances intake and excretion.

Another cause of an elevated aluminum concentration in urine may be contamination due to specimen handling. Aluminum is ubiquitous in our environment and difficult to avoid. Make sure clean and metal-free containers are used for sampling and shipping.

Working in the aluminum-producing industry can result in excessive exposure and uptake, which may lead to an increased aluminum burden. Rückgauer stated that 24h urine test results showed that exposure at the workplace can increase the aluminum concentration in urine to 300-500 mcg/24h. The normal range is < 60 mcg/24h. (Rückgauer M. in Labor und Diagnose, TH Books 2005, pg. 507-9).

Hair analysis also reflects a chronic aluminum exposure (Rückgauer M. in Labor und Diagnose, TH Books 2005. pg. 509) and can be used to confirm an aluminum burden.

Fecal analysis may be used to evaluate the oral aluminum intake and excretion via the digestive tract. Some of the tests we performed show an excessive aluminum concentration, suggesting that this test can be useful.

In uremic patients one of the first symptom of an excessive aluminum burden is a microcytic, hypochromic anemia, because a high aluminum exposure affects erythropoiesis.

#### ■ **The Effect of Chelating Agents on Injection Needles**

We wanted to know if chelating agents such as EDTA and DMPS, used as injectables, affect metal needles.

We first checked the metal content of the injectables NaCaEDTA, NaMgEDTA, DMSA and DMPS. We used different size injection needles, metal and plastic. We allowed the chelating agent to 'work' for 10 minutes on the different inner wall size of the needles, and then tested the chelating agents again. Our investigative results indicate that the tested chelating agents did not significantly affect metal needles.

#### ■ **External Quality Assessment Schemes**

MTM regularly participate in European interlaboratory assessment tests (round robins). For over a year, we also participated in Canadian round robin tests. The Centre de Toxicology / INSPQ, Quebec is the only state institution that, aside from other human specimen, tests hair samples. We have participated in several trials and always finished with top marks.

#### ■ **Boric acid as Urine Stabilizer**

Urine that has been stabilized with boric acid is not suitable for the determination of metals. Keep this in mind, please. The tubes we supply do not contain stabilizers and are metal-free.

#### ■ **Barium in Metal free K2-EDTA Tubes for Whole Blood Collection**

Our Laboratory tested certified metal-free Becton Dickinson vacutainers for metal content. We routinely do this when we receive a new shipment of tubes or containers. These tubes with the lavender top contained extreme levels of Barium.

These tubes are not suitable for the detection of Barium in blood.



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### ■ Plastic, Sample Kits and Shipping Instructions

Plastics production has increased twentyfold since 1964, and is expected to double again in the next 20 years and almost quadruple by 2050.

Plastic products discarded into the environment, particularly oceans, slowly disintegrate into smaller particles and are consumed by marine organisms. Every fifth mackerel and cod in the Baltic and North Sea has micro plastic parts in the intestine, and that plastic eventually ends up in our stomachs.

For more information:

<https://www.theguardian.com/business/2016/jan/19/more-plastic-than-fish-in-the-sea-by-2050-warns-ellen-macarthur>

The sample kits we provide you with come with black plastic envelopes for ease of shipping. Because we are environmentally conscious, we reuse them. If you prefer new ones only, please let us know.

At times, we receive urine not in the appropriate urine tubes that we provide, but in the protective cover. Needless to say that this is a source of contamination we have no control over. Please provide your patients with the correct sampling instructions.

## Medical Workshops and Conferences

### ■ International Conferences & Workshops 2016

Our last workshops were fully booked, and the SENMAL Congress in Madrid had an attendance of over 150 doctors.

09/24/2016 **MTM Chelation Seminar**  
**The use of chelating agents in chronic exposures**  
Hamburg, Germany (German)

For future workshops and updates, please visit:

<http://www.microtraceminerals.com/en/workshops>

Thank you, and let us know what topic you would like us to cover in future newsletters.

Your

E.Blaurock-Busch and Team