

| Field | Detail |
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| Test Name (Analyte) | BI Mn (Whole BI Manganese) |
| Alternative Name(s) and Keywords | Manganese, Mn (blood, whole blood). |
| Discipline/Specialty | Clinical Chemistry |
| Description | Manganese (Mn) is an essential trace element which is widely distributed in the environment. It is an important cofactor for a variety of enzymes involved in signal transduction as well as DNA and neurotransmitter biosynthesis. Mn is also an essential cofactor for the outer-mitochondrial form of superoxide dismutase. |
| Clinical Indication | <p>Toxicity of manganese has been clearly defined for many years in workers handling a variety of manganese compounds in mining and industry. Although manganism is primarily regarded as an occupational disorder, several papers have revealed that manganese overload may occur during TPN especially when there is biliary stasis and/or chronic liver failure. Whole blood Mn levels give an indication of chronic exposure to Mn as Mn accumulates in the red blood cell.</p> <p>The most pronounced and incapacitating symptom associated with chronic exposure to elevated levels of manganese includes severe extrapyramidal dysfunction resembling the dystonic movements associated with Parkinson's disease. T1-weighted MRI of patients who have parkinsonism-like symptoms exhibits a high density in the basal ganglia attributed to Mn, especially the globus pallidus and striatum.</p> |
| Patient Preparation | There are no particular requirements as to time, or avoidance of food or drink for collection of specimens. |
| Specimen Container | KEDTA anticoagulated blood tube (purple top). |
| Container Image | |
| Primary Sample Type | Blood. |
| Minimum Volume Required <small>(µL for serum/blood/urine etc. unless otherwise stated)</small> | Samples should consist of at least 0.5 ml, and volumes of 1.0 - 2.0 ml are preferred. |
| Special Precautions / | Blood taken via metal needle causes contamination. If no |

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| Requirements | plastic lined needles are available for blood taking, we advise to discard the first 10ml of blood (or use for other tests required e.g. UE or FBC) before filling the EDTA specimen container for manganese analysis. |
| Transport and Storage Requirements | None. |
| Telepath Test Code | BMN |
| National Pathology Code (READ/SNOMED CT) | N/A |
| Reference Interval(s) | 70 -280 nmol/L |
| Telephone Action Limit(s) | N/A |
| Measurement Units | nmol/L |
| Clinical Interpretation | >360 nmol/L potentially toxic levels. As excess manganese is excreted in the bile, this may occur where there is biliary stasis, particularly in patients on TPN. Manganese accumulation in the brain, may cause 'Manganese-induced Parkinsonism'. |
| Useful Links / Guidelines | N/A |
| Common Interferences / Causes of Spurious Results | See special precautions section regarding sample collection. |
| Availability of Clinical Advice | Advice available from the duty biochemist – please contact LCL customer service. |
| Significant Change Values | N/A |
| Testing Frequency / Minimum Re-testing Interval | N/A |
| Related tests | None. |
| Technology & Analytical Principle Used | ICP-MS with collision cell in KED mode. |
| EQA Scheme | NEQAS Trace Elements |
| Laboratory Performed | RLH |
| UKAS Accreditation Status | Pending. |

Form completed by: Hannah Fearon

Date: 25/08/23

Change control completed by:
(QMS-EXTD-160, LCL Laboratory Handbook)

Date: