

## Results and Evaluation

In the report, the reaction to each substance is listed and presented in an easy to read graph. A brief description of the metals the blood was tested against is included, as well as common sources of exposure. The Stimulation Index (SI) measures the strength of the lymphocyte response (Type IV allergy); the negative control is the reactivity of the patients' unstimulated cells and the positive control (Pokeweed Mitogen) is used to ensure that the cells react normally, indicating no immunosuppression.

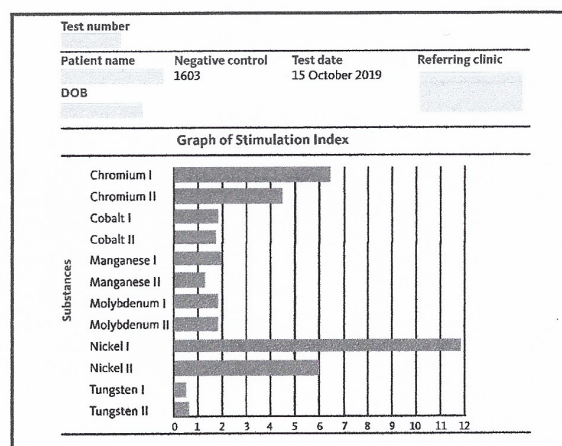
SI 2-3 Weakly positive reaction

SI >3 Positive reaction

SI >10 Strongly positive reaction

Test number				
Patient name	Negative control	Test date	Referring clinic	
DOB	1603	15 October 2020		
Code	Substances	Stimulation Index	Morphology	Evaluation
PWM	Pokeweed	150	+++	Strongly positive
1. Cr	Chromium I	6.6	++	Positive
	Chromium II	4.4	++	Positive
2. Co	Cobalt I	1.8	-	Negative
	Cobalt II	1.6	-	Negative
3. Mn	Manganese I	1.9	-	Negative
	Manganese II	1.2	-	Negative
4. Mo	Molybdenum I	1.8	-	Negative
	Molybdenum II	1.8	-	Negative
5. Ni	Nickel I	11.1	+++	Strongly positive
	Nickel II	6.0	++	Positive
6. W	Tungsten I	0.7	-	Negative
	Tungsten II	0.8	-	Negative

**Evaluation of test results**  
 Strongly positive to: Nickel  
 Positive to: Chromium  
 Negative to: Cobalt, Manganese, Molybdenum, Tungsten



### Case report

The surgeon was concerned about allergy to a cobalt chromium knee replacement. Pain and swelling were present with no evidence of infection. The results showed hypersensitivity to both nickel and chromium.

## Technical

MELISA (MEemory Lymphocyte Immuno Stimulation Assay) is an *in vitro* test that measures antigen-specific T cell responses to suspected metal allergens. It is used to detect Type IV delayed-type sensitivity.

Lymphocytes are isolated from whole blood. Metal salts are added to cell cultures in 2-3 dilutions and incubated for 5 days. A positive control and three negative controls are also established. A radioactive tracer is added so that the uptake by dividing lymphocytes can be measured. The lymphocyte proliferation is reported as a Stimulation Index. An SI above 3 represents a positive reaction to an antigen. The presence of lymphoblasts and dividing lymphocytes is also confirmed by morphology.

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