

## LRA Dental & Orthopedic Material Testing Frequently Asked Questions (FAQs)

This page is provided to address many of the common questions regarding the Lymphocyte Response Assay (LRA) Tests for Dental and Orthopedic Materials. If you have a question that is not adequately addressed here, please contact us for further information.

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### What is LRA?

Delayed allergy tests, commonly known as LRA (Lymphocyte Response Assay) tests or **LRA by ELISA/ACT®** tests, are used to assess delayed immune reactions or sensitivities to various substances. LRA testing is an alternative approach to traditional allergy testing methods, such as skin prick tests or blood tests measuring antibodies.

LRA tests are based on the principle that certain substances can trigger a delayed immune response mediated by T cells, leading to inflammation or other symptoms. These tests aim to identify specific sensitivities or intolerances that may contribute to chronic health issues or symptoms.

LRA tests assess the cellular immune response, often focusing on lymphocyte activation and cytokine production, to identify sensitivities or intolerances to various substances, such as foods, environmental allergens, or chemicals.

### How are the LRA Dental and LRA Orthopedic Panels Used?

These two panels are used to help identify the dental (orthodontic) and orthopedic materials that are neither suitable nor safe to use in or on the patient's body. Examples of where a patient may encounter these materials in dentistry, orthodontics, and surgery include:

- Dental implants
- Fillings & Crowns
- Joint replacements
- Mouth guards
- Adhesives
- Stents
- Surgical mesh
- Sutures
- And more

### How does it work?

We expose the patient's immune cells to 46 chemicals frequently found in dental and orthopedic materials to identify if any of these chemicals cause delayed-type hypersensitivity (DTH) and can be potentially harmful to the patient.

We can correlate any positive reactions to chemicals commonly used in various dental and/or orthopedic materials. We then provide a report to the patient informing them of the items to which they are reactive, along with a list of materials containing those substances that we recommend be avoided.

## What is the difference between the Clifford Materials Reactivity Testing (CMRT) and the new LRA panel?

CMRT tested the antibodies produced by a classic serum ELISA IgG when the immune system encounters toxic, noxious or irritating substances.

LRA examines all the three types of delayed sensitivity reactions through lymphocyte activation:

- Reactive antibody (IgA, IgM, and IgG)
- Immune complexes
- T cell direct activation

***LRA is a more comprehensive test.***

## Which chemicals (antigens) are included in the LRA panel?

This LRA panel is comprised of compounds that show a higher rate of reactivity in individuals and are present in a wide range of dental and orthopedic materials. They include:

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|--------------------------|----------------------|----------------------------------|
| 1. Acetates              | 16. Gallium Salts    | 31. Pthalates                    |
| 2. Aluminum              | 17. Gold             | 32. Rubidium Salts               |
| 3. Antimony              | 18. Iron Salts       | 33. Ruthenium                    |
| 4. *Arsenic              | 19. Lanthanum        | 34. Scandium                     |
| 5. Barium                | 20. *Lead            | 35. Silicates                    |
| 6. Benzil                | 21. *Mercury         | 36. Silver                       |
| 7. Benzylkonium Chloride | 22. Metabisulfite    | 37. Sodium Fluoride              |
| 8. *Beryllium Salts      | 23. Methyl Paraben   | 38. Sorbates                     |
| 9. Bismuth Salt          | 24. Nickel           | 39. *Thallium                    |
| 10. Cadmium              | 25. O-Posphoric Acid | 40. *Thimerosal                  |
| 11. Cellulose            | 26. Phenol           | 41. Tin                          |
| 12. Cerium Salts         | 27. Polyethers       | 42. Titanium                     |
| 13. Chromium Salts       | 28. Polyethimines    | 43. Toluene                      |
| 14. Cobalt Salts         | 29. Polyvinyls       | 44. Xylene                       |
| 15. Formaldehyde         | 30. Propionates      | 45. Zinc                         |
|                          |                      | 46. Zirconia (Zirconium dioxide) |

*\*Chemical groups and families not classified as safe for any internal or contact use, based on information from World Health Organization and national toxicology groups. Inclusion here is for the purpose of total body burden assessment and cross-reactivity considerations.*

## What is the difference between the LRA Dental Panel and the LRA Orthopedic Panel?

The main difference is in the materials to which we make cross reference; in the orthopedic panels, you will find a list of orthopedic materials; the same applies to the dental panel.

## How many materials are evaluated?

Results identify positive reactions and correlate this information to (25,000) trade-named dental and/or orthopedic materials in our database.

*Note: Although our list is extensive, we always recommend that patients and providers ensure that the materials chosen for their procedures do not contain reactive chemicals.*