

The Differences Between MRT and ALCAT

There have been some questions regarding the differences between the Mediator Release Test (MRT) and the ALCAT test. Both MRT and ALCAT are used to assist clinicians and patients in identifying harmful food and food chemical reactions. Although MRT and ALCAT are similar in some respects (see table 1), there are important technical differences and improvements which make MRT superior in terms of accuracy, precision, and reliability (see table 2).

Comparing Precision of Measurement

There is a direct correlation between precision of measurement and clinical reactivity. The more precise the measurement of reactivity to antigen, the higher the sensitivity and specificity of a particular technology. The higher the sensitivity and specificity, the more clinically useful that information will be. When the physician or dietitian have the best possible information to work with, they can achieve maximum clinical outcomes in their compliant food sensitive patients.

Development of the technology

Both MRT and ALCAT were invented and patented by Immunologist Dr. Mark Pasula. ALCAT was developed and patented in the early-to-mid 1980's based on the available technology of that time. MRT was developed and patented roughly 2 decades later (US Patent #6,114,174 issued September 5, 2000) utilizing improved computing technology as well as innovating a breakthrough in the field of particle counting and sizing.

Table 1: Similarities of MRT and ALCAT

- .. Both were invented and patented by Dr. Mark Pasula.
- .. Both are whole blood assays. This has the advantage of containing all circulating cellular and humoral components involved in adverse reactions.
- .. Both are endpoint assays, accounting for a variety of mechanisms.
- .. Both are functional reactivity tests that challenge the blood with antigen to determine the immune response in vitro (as opposed to measuring a static potential mechanism like IgG that can be either pathologic or protective).
- .. Both can test reactions to foods and food chemicals (unlike IgG which can only test for food reactions).

Table 2: Advantages of MRT over ALCAT

Precision of Measurement:

- .. MRT measures each cell millions of times as it passes through the aperture. ALCAT measures each cell once with older peak detection methodology.
- .. MRT utilizes a 3 Dimensional measurement vs. 2 dimensional measurement of ALCAT which gives MRT the ability to precisely measure the true volume/size of each cell.
- .. Because MRT isn't dependent on a baseline or threshold, MRT can measure and count the true sizes of all cells passing through the aperture. This means MRT can accurately measure reactions in both granulocytes and lymphocyte regions. ALCAT is limited to granulocytes only because of its reliance on a baseline and threshold and the fact that smaller cells (T-cells, NK cells, K cells) often get lost or inaccurately sized in the presence of larger cells (granulocytes). (see scientific explanation below). This means no accounting for T-cell, NK cell, or K cell reactions.
- .. Because MRT doesn't rely on a baseline or threshold, MRT doesn't lose cells during measurement.