

CLINICAL SPECIFICATIONS
TETRACHLOROETHYLENE
Chemical Found In:

Tetrachloroethylene is a chemical used in metal degreasing and as a solvent and cleaner in dry cleaning. It is a common drinking water contaminant.

Sources:

<https://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=48>

<https://www.epa.gov/sites/production/files/2016-09/documents/tetrachloroethylene.pdf>

<https://www.health.ny.gov/environmental/chemicals/tetrachloroethene/>

Known Cross-Reactions:
Clinical Significance:

The detection of antibodies to Tetrachloroethylene bound to human protein in serum indicates a breakdown in immunological tolerance and induction of chemical intolerance. Tetrachloroethylene or its metabolites can bind to human tissue proteins and form neo-antigens. These new antigens are comprised of the haptenic chemical plus the tissue antigen. The formation of neo-antigens initiates an immune response which may result in antibody production against the chemical and the human tissue. Continued exposure to the chemical and the subsequent production of antibodies against various tissue antigens, may result in autoimmune reactivity.

Persons with antibodies to Tetrachloroethylene bound to human protein in serum should avoid exposure to the substance.

References:

1. Aschengrau, et al. Prenatal exposure to tetrachloroethylene-contaminated drinking water and the risk of congenital anomalies: a retrospective cohort study. *Environmental Health*, 2009; 8:44.
2. Gallagher, et al. Risk of breast cancer following exposure to tetrachloroethylene-contaminated drinking water in Cape Cod, Massachusetts: reanalysis of a case-control study using a modified exposure assessment. *Environmental Health*, 2011; 10:47.
3. Vieira, et al. Impact of tetrachloroethylene-contaminated drinking water on the risk of breast cancer: Using a dose model to assess exposure in a case-control study. *Environmental Health: A Global Access Science Source*, 2005; 4:3.