**Background:**
- RIFM has ~2800 fragrance materials to analyze for safety assessment.
- The process of testing each fragrance material for eight toxicology end points is lengthy and costly.
- Read across is a powerful strategy which could greatly reduce the number of chemicals to test for their toxicological effects on human health and environment.

**Clustering criteria:**
- Structure and sub-structure similarity
- Fragment based reactivity
- End point specific reactivity
- General mechanistic similarity
- Empiric.

**Clustering process:**
- The first step in finding an appropriate read across is to cluster chemicals.
- Chemicals are clustered and sub-clustered based on functional groups, structure similarity, and reactivity.
- This is an iterative process in which clusters and sub-clusters can be combined or separated based on toxicity data and end point expert’s judgement.

**Conclusions:**
- Clustering is an effective strategy to identify read across.
- Read across provides an efficient and rational way to assess safety and toxicity.
- Toxicity and reactivity trend analysis can be done within the cluster.