

Symposium 5

Redox and oxidative stress

The products of the reduction/oxidation reactions in cells and particularly oxygen radical species have long been proposed as a mechanism of toxicity and are often cited as a potential mechanism when there is a lack of any other credible explanation. Oxygen radical species are though a natural by-product of respiration in the cells and furthermore are released as a consequence of cell stress. This can be confused as a cause of toxicity when it is in fact a consequence. Redox cycling is a particular property of molecules that have a redox potential that falls within a small range and this is often not recognised. Furthermore for toxicants that are just proposed as oxidants it is not clear they are sufficiently active to overcome the oxidation protection effects in the cells, or that the cells are sufficiently oxygenated to allow oxidation reactions to occur. After 30 years of redox chemistry it is time to revisit this important area. This is done in this session with speakers who are leaders in their fields of oxidative stress and response.

Title	Speaker	Institution
Overview - Mitochondria and redox stress	Prof Victor Darley Usmar	University of Alabama (USA)
NRF 2 and antioxidant response	Prof John Hayes	University of Dundee
Biomarkers of oxidative stress.	Professor Pietro Ghezzi	Brighton and Sussex Medical School
Redox and cellular stress in relation to consumer risk assessments	Dr Alistair Middleton	Unilever