

# EPR, detection of radicals in tissue

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# Contents

## First and classical EPR detection in tissues

### Types of radicals detectable in tissues

- ◆ Ascorbate radical
- ◆ Melanin, Tyrosine radicals
- ◆ Nitrosyl complexes
- ◆ Organic radicals
- ◆ Manganese ions

### EPR conditions to best study tissues

- ◆ Room temperature or frozen
- ◆ Direct or spin trapping

### Examples from EPR studies of intestinal tissues

- ◆ *tert*-butyl (*t*BOOH) as a model of lipid hydroperoxides
- ◆ Trinitrobenzenesulfonic acid (TNBS) as an inducer of colonic inflammation

### Literature Survey 1995-2002

- ◆ Radicals in tooth and bone tissues
- ◆ Radicals in skeletal muscle tissues
- ◆ Radicals in other tissues

# First and Classical EPR detection in tissues (1)

- **Nitrosyl complexes by Barry Commoner**
  - ◆ Changes in electron spin resonance signals of rat liver during chemical carcinogenesis. *Nature*. 1965; 207(3):1246-9.
  - ◆ Electron spin resonance of iron-nitric oxide complexes with amino acids, peptides and proteins. *Biochim Biophys Acta*. 1968;