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Detecting free radicals in single cells using diamond relaxometry

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Propositions

Detecting free radicals in single cells using diamond relaxometry.

1. Diamond relaxometry reveals the overall concentration of free radicals in cells (this thesis).
2. T1 relaxometry can determine both the increase and decrease of radical concentration in real-time (this thesis).
3. It is possible to target fluorescent nanodiamonds to a specific organelle and perform free radical measurements (this thesis).
4. Free radicals play a crucial role in the immune response and aging process (this thesis).
5. NV centers in fluorescent nanodiamonds facilitate monitoring oxidative stress responses and the aging process caused by free radicals in cells (this thesis).
6. Relaxometry can be used to measure before and during the reaction on the same cell and same particle (this thesis).