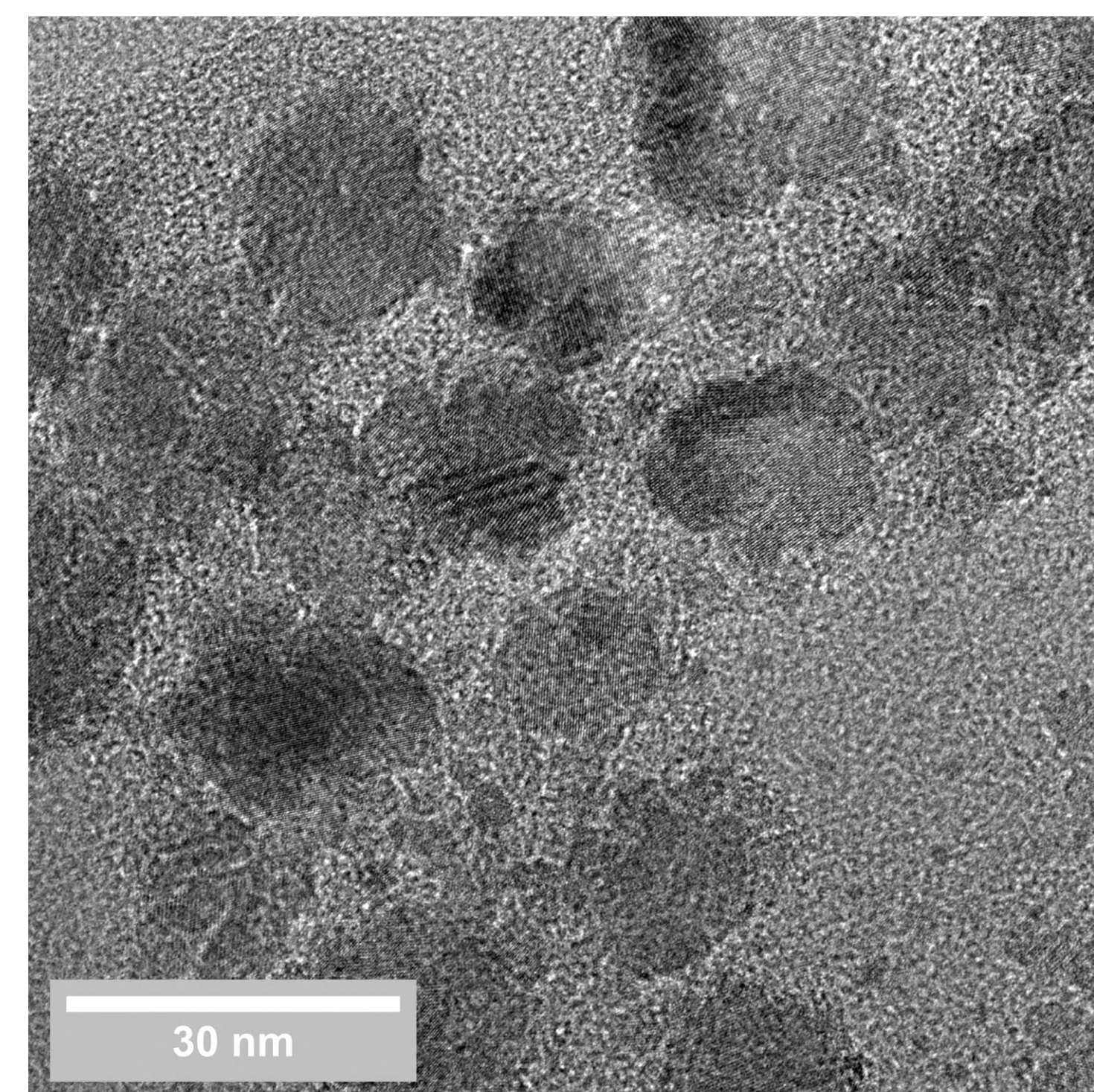
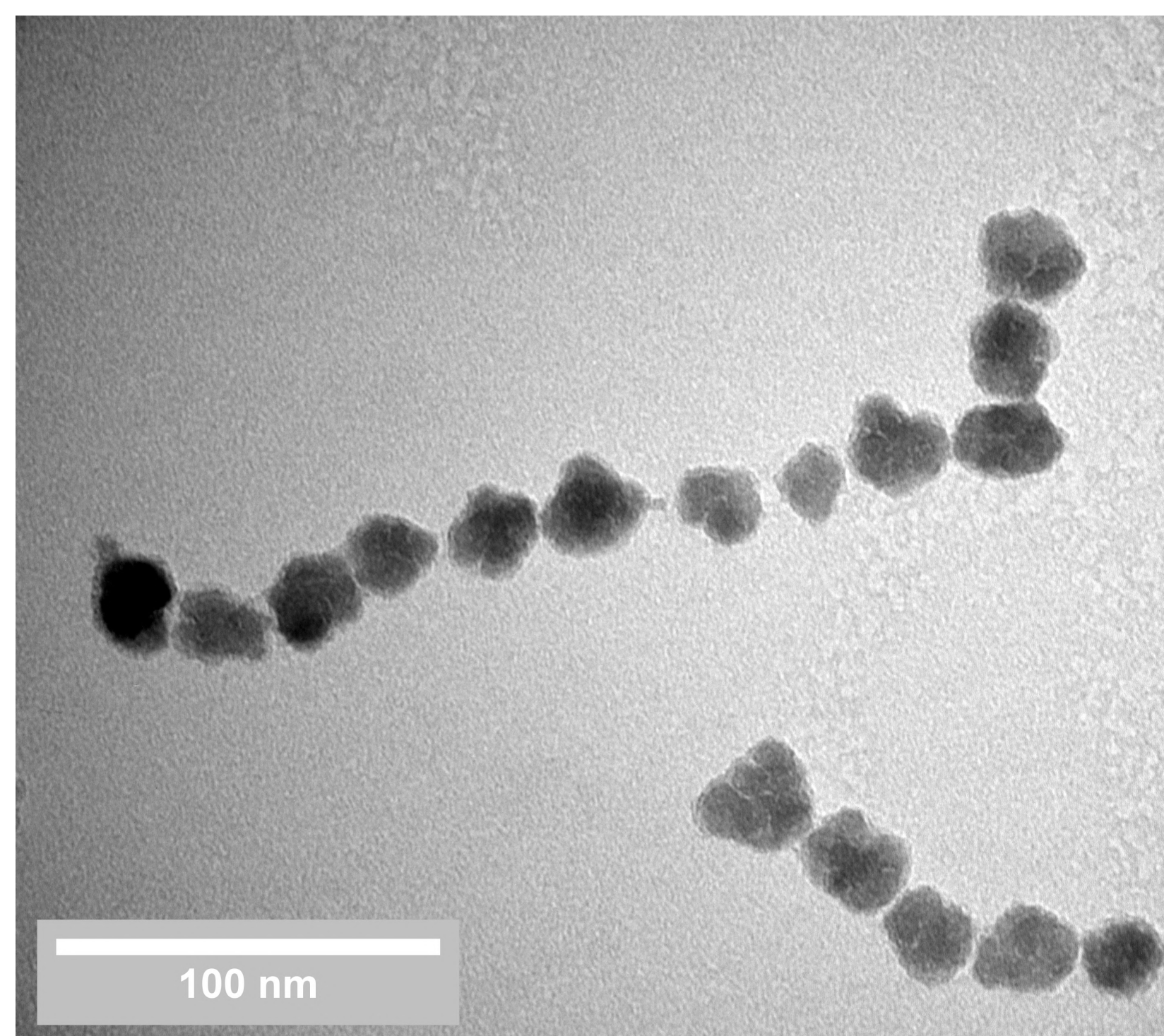
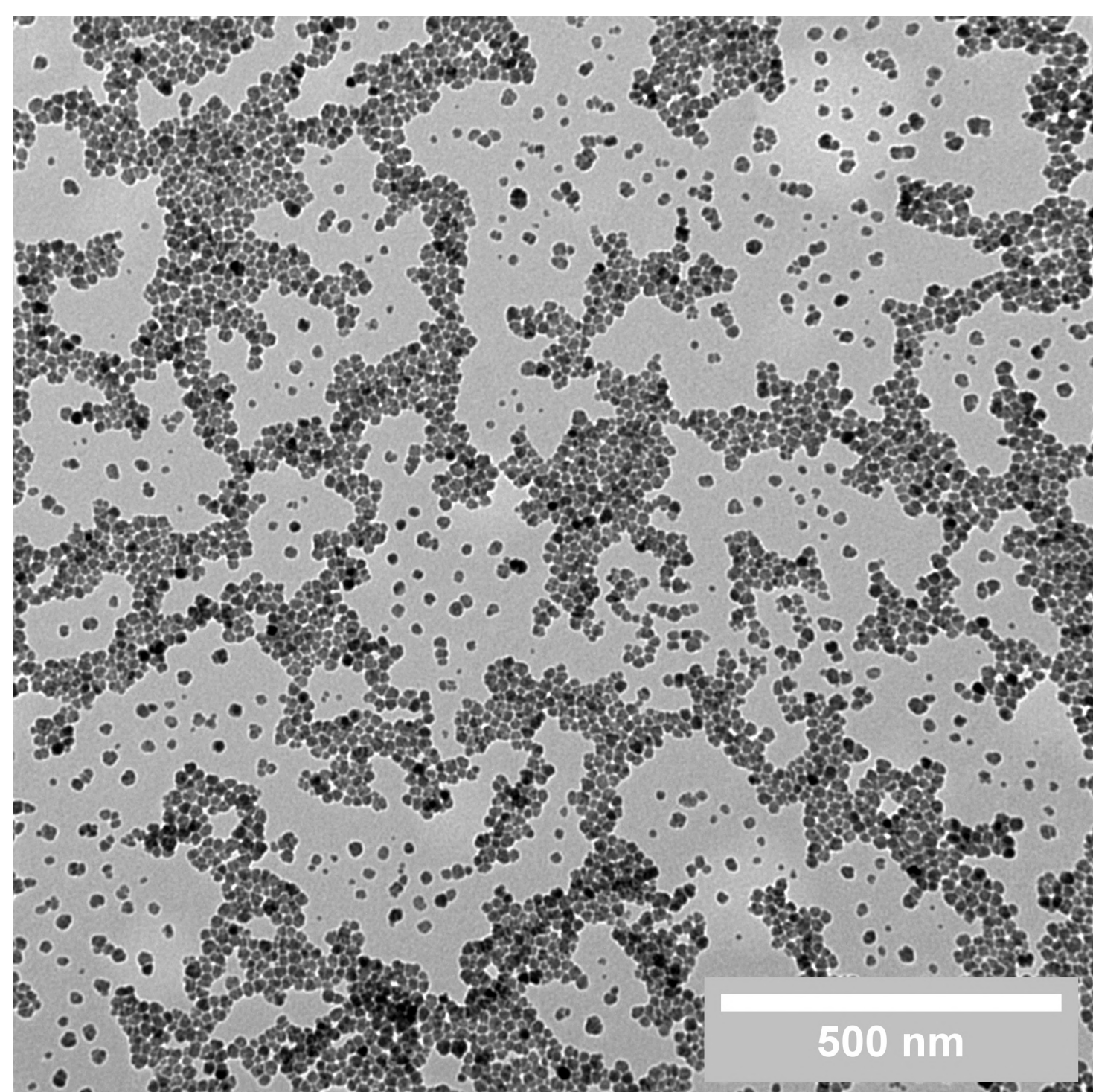


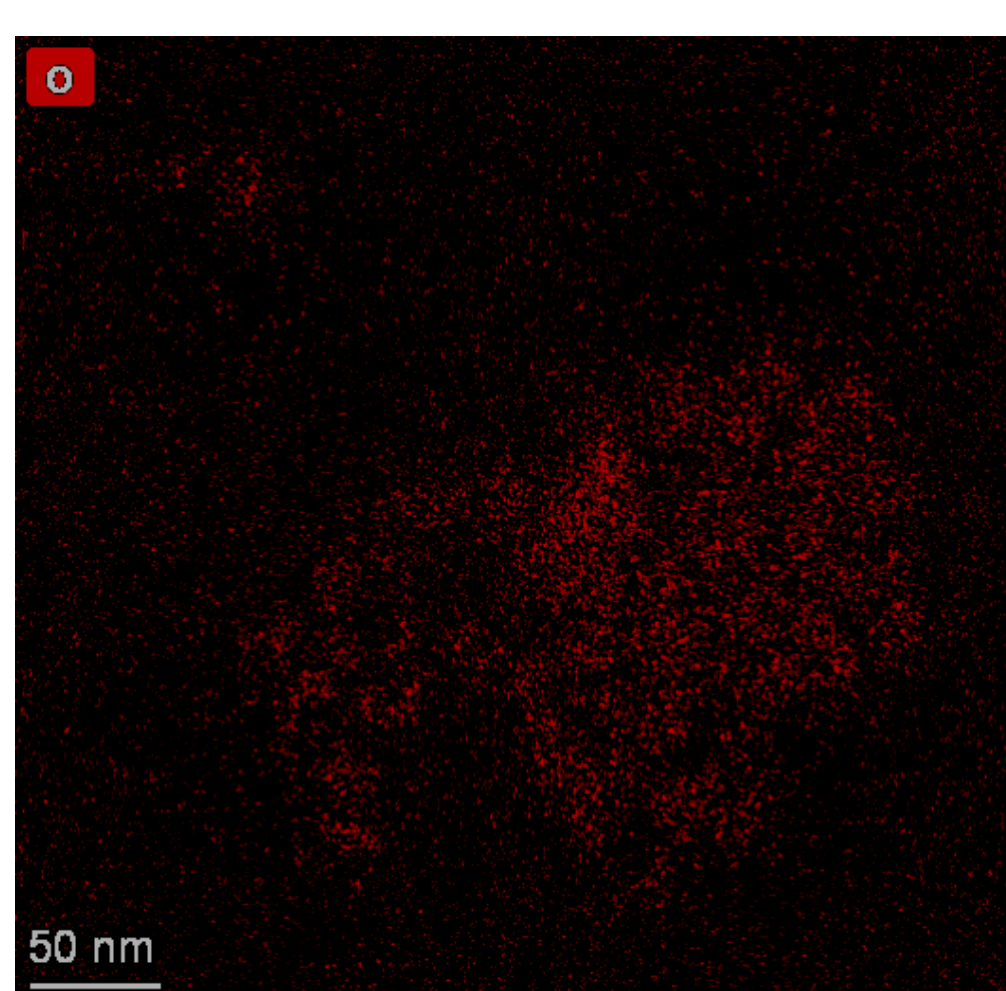
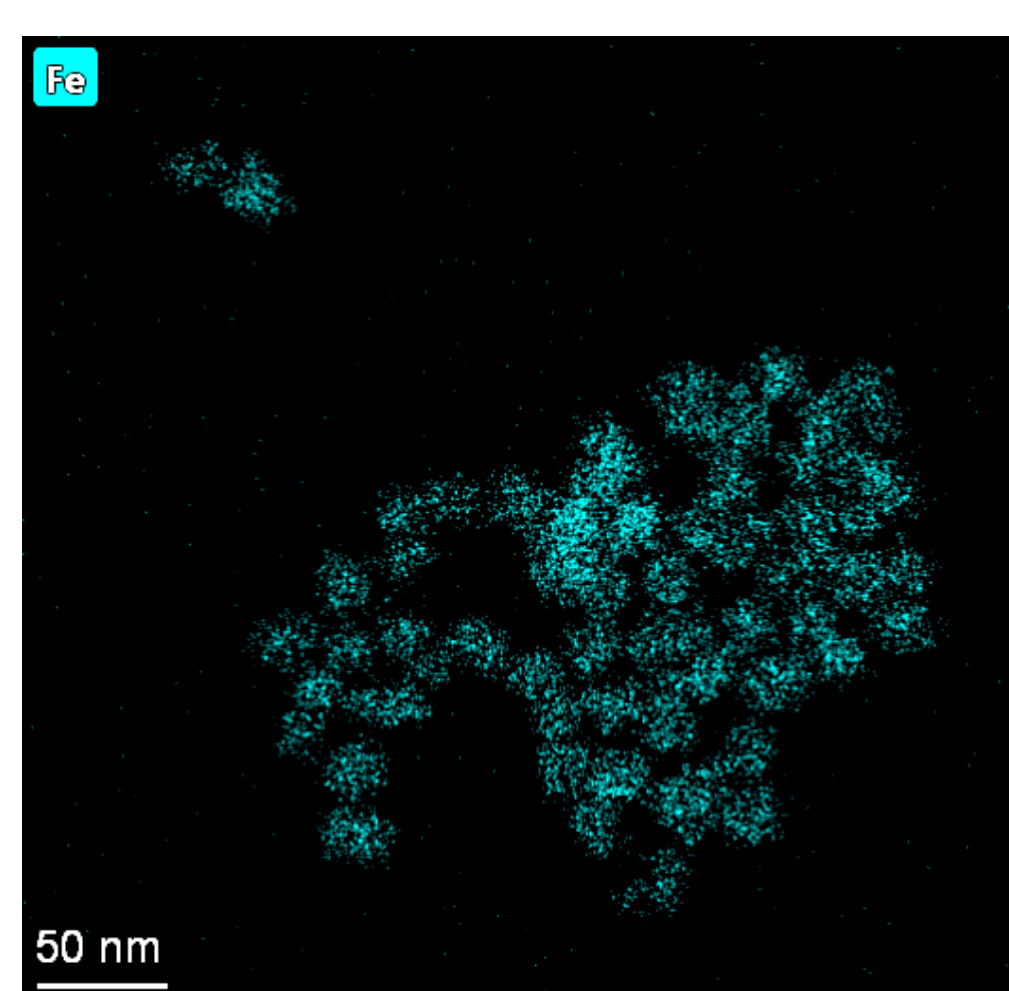
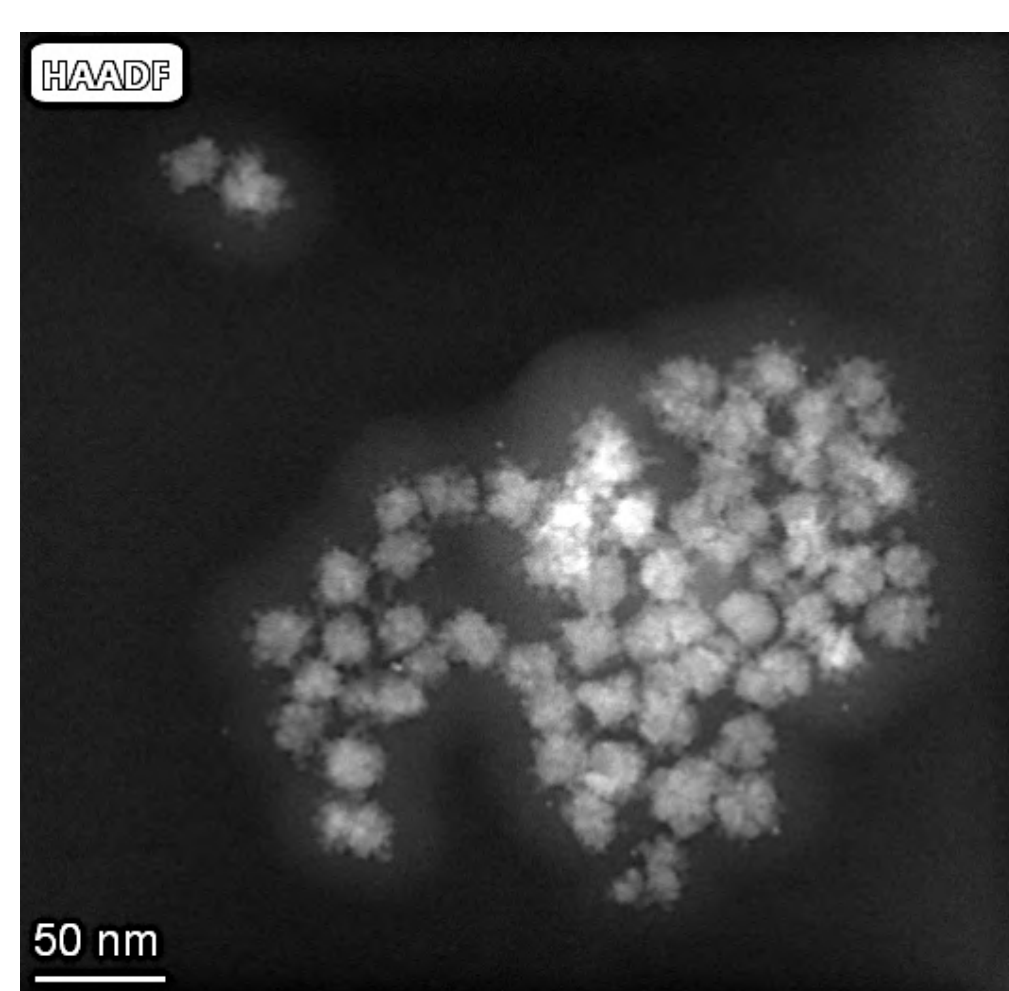


# Le magnétisme à l'échelle nanométrique

## Des nanoparticules magnétiques...

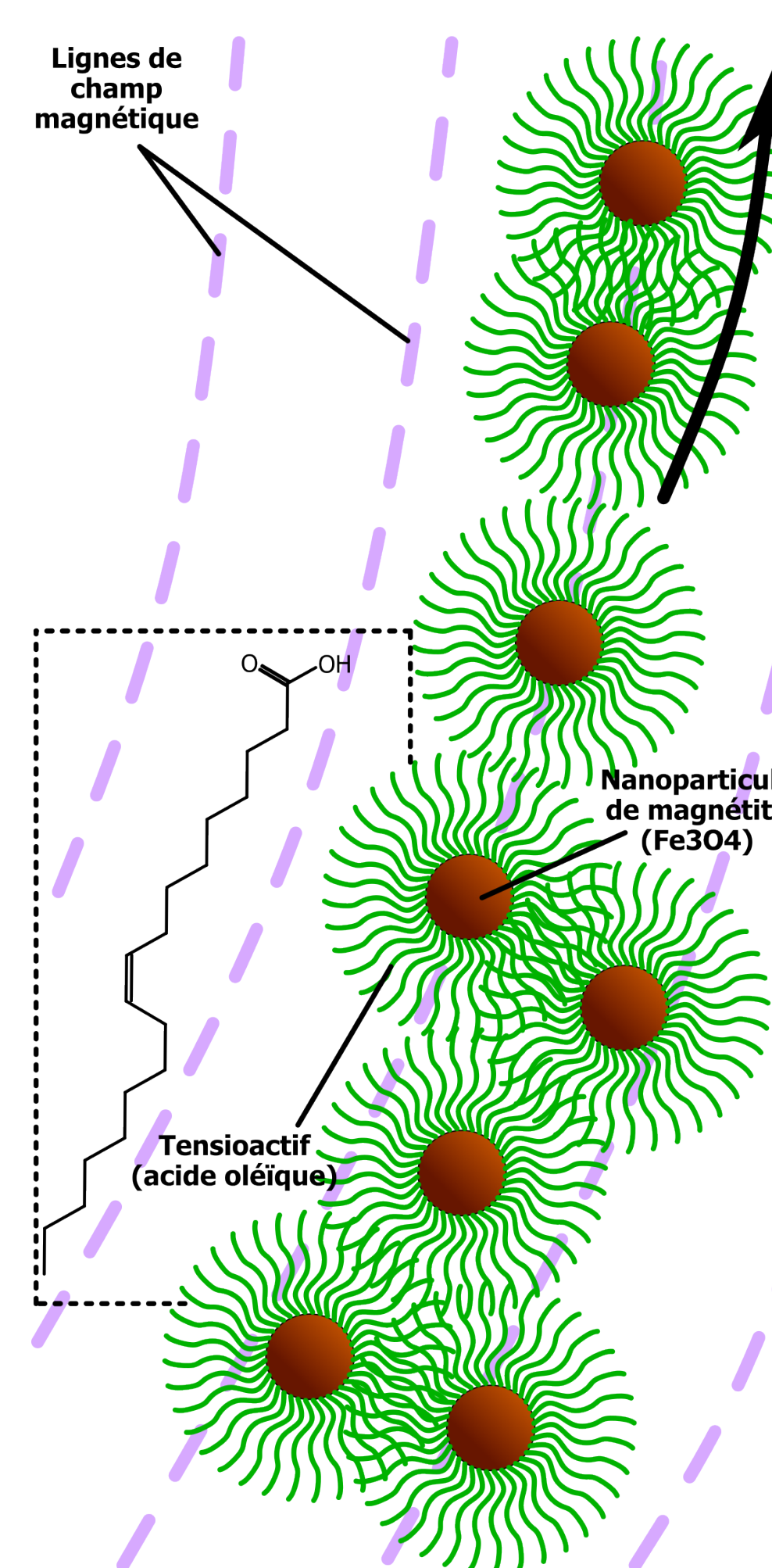


### Composition et structure



Structure magnétique ( $\text{Fe}_3\text{O}_4$ )  
=> propriétés magnétiques

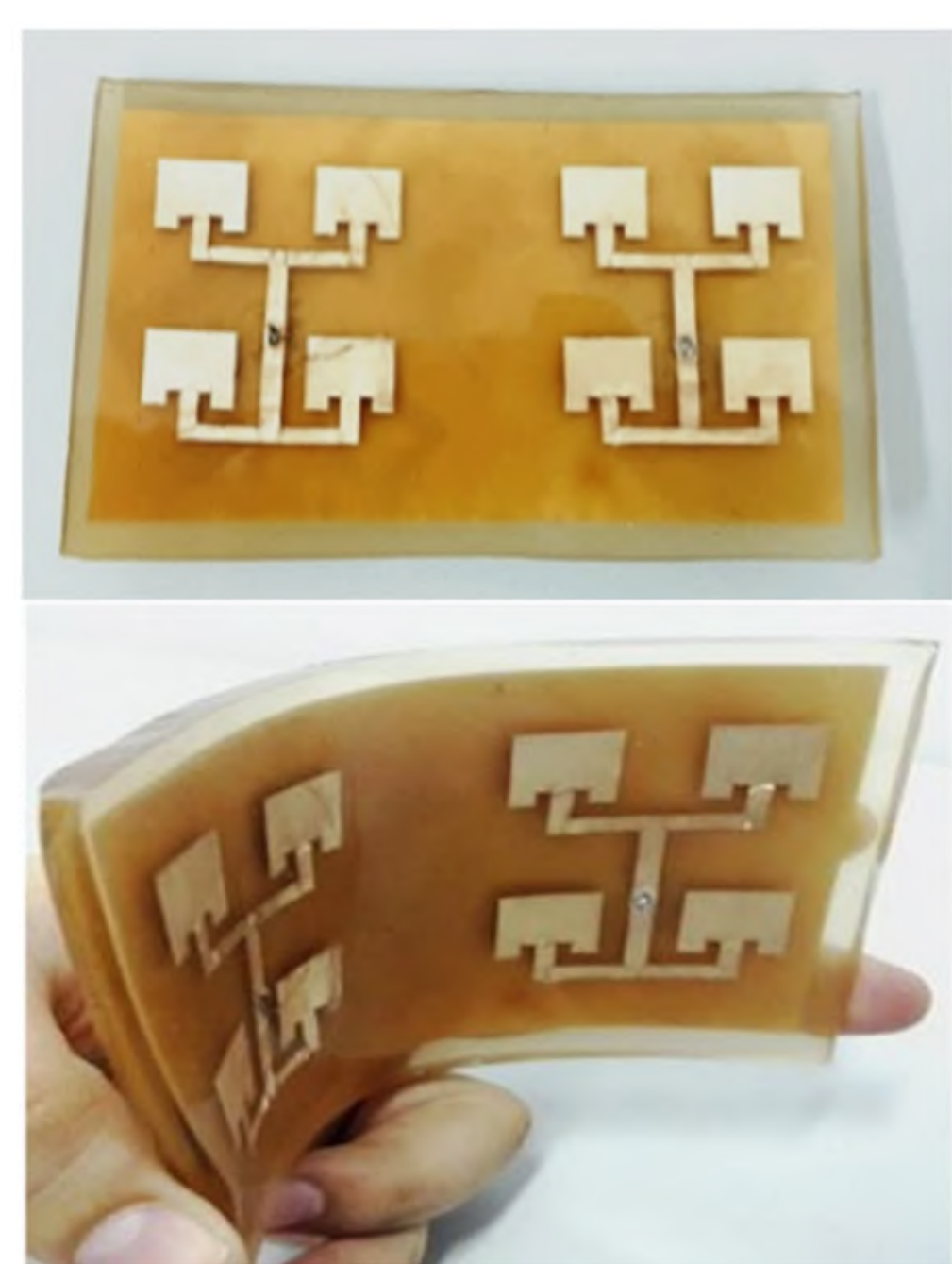
### Ferrofluide



Effet de champ magnétique + tension de surface (tensioactif) = structures pointues !

## ... aux nombreuses applications potentielles

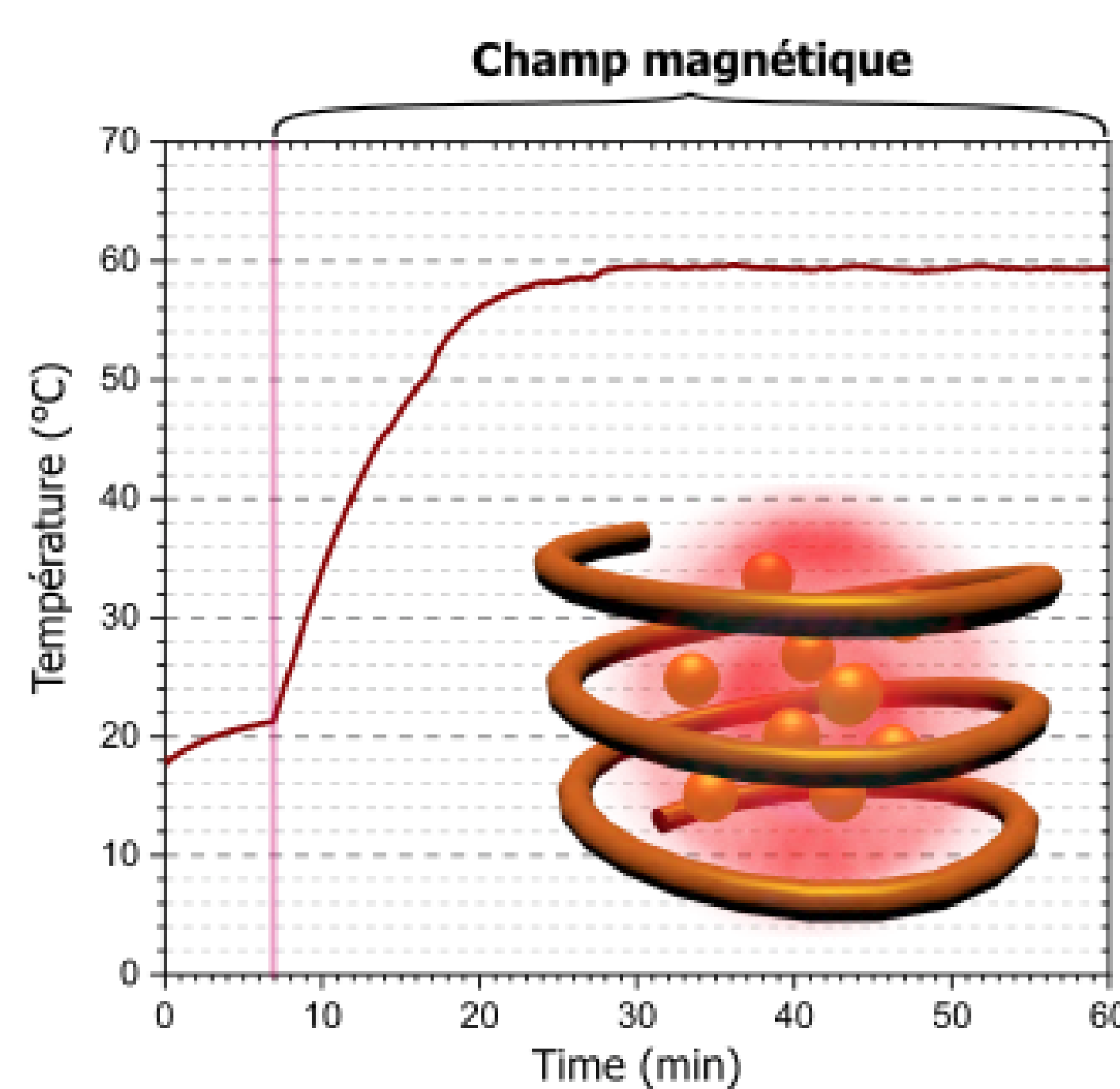
### COMMUNICATIONS



Alqadami et al. Applied Physics A, 2016, 122, 9

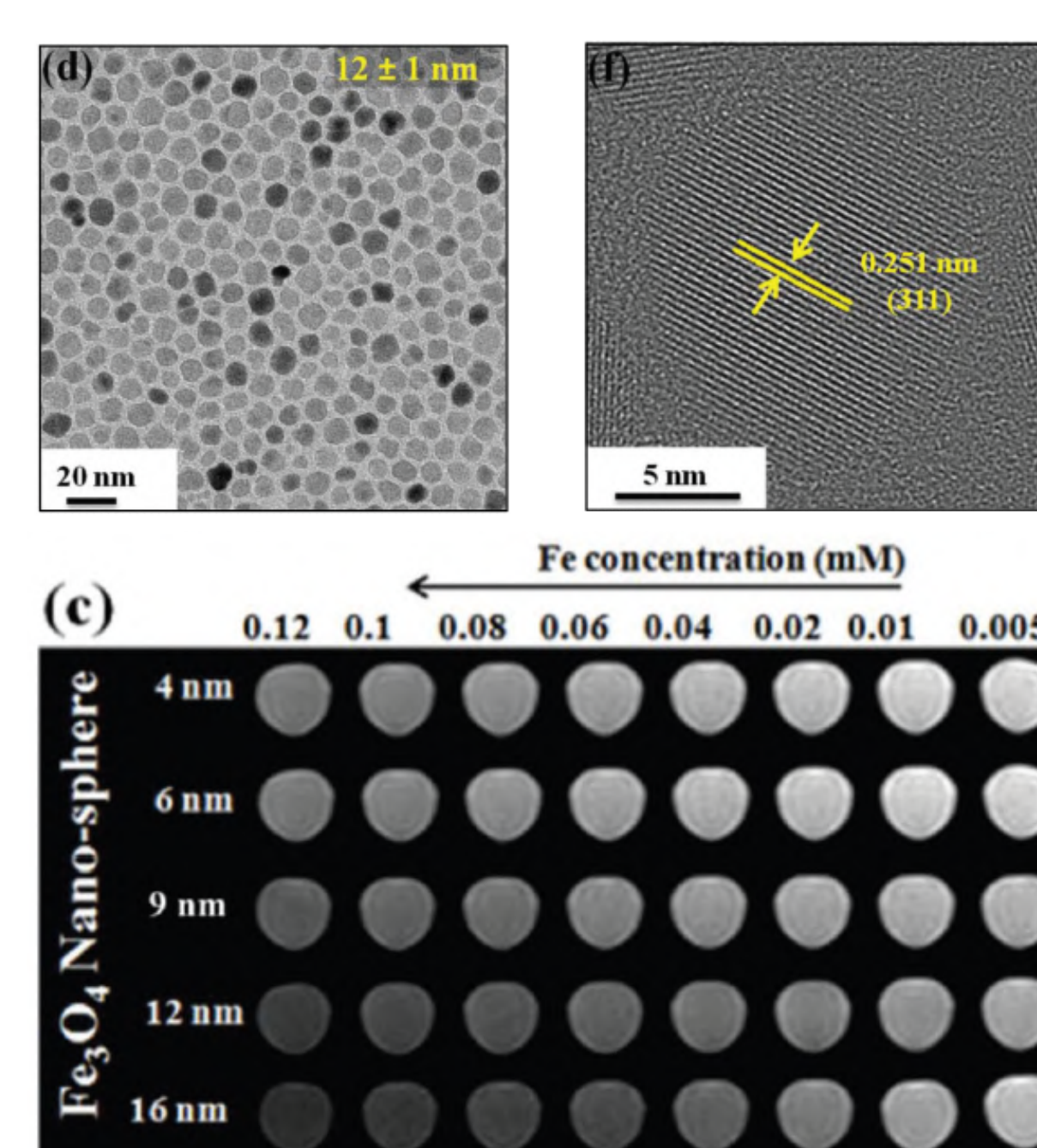
Réseau d'antennes (radio)

### TRAITEMENT DU CANCER



Hyperthermie magnétique

### IMAGERIE MÉDICALE



Mohapatra et al. Nanoscale, 2015, 7, 9174

Agent de contraste IRM

### MATÉRIAUX INTELLIGENTS



Pièces d'impression 4D