

## Supplementary Information

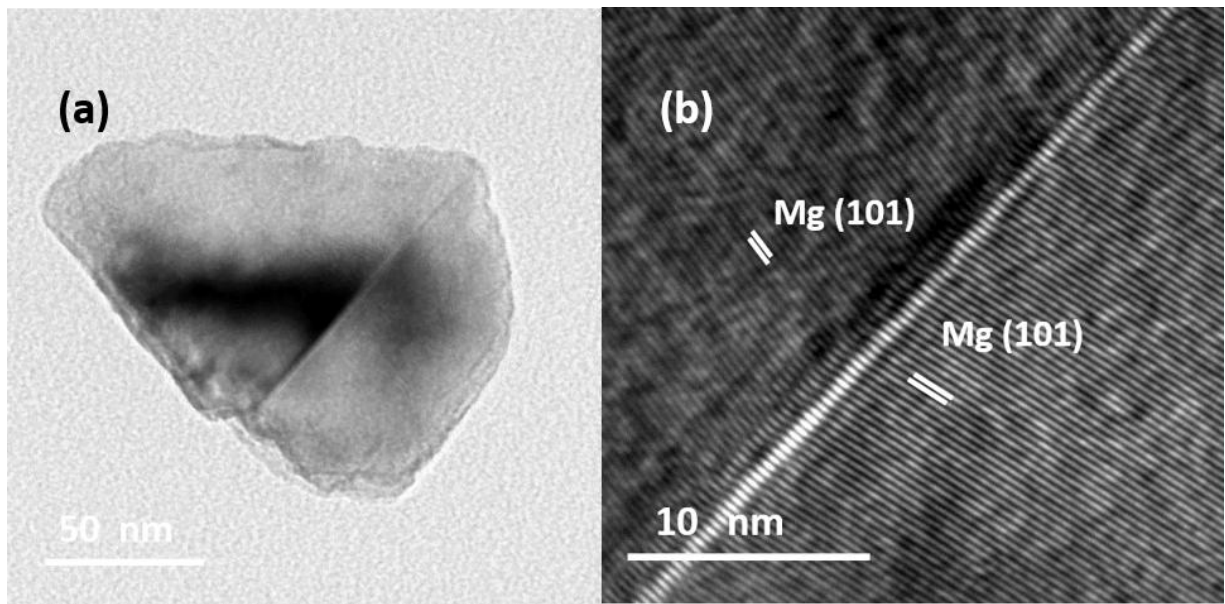
# Substrate-Independent and Catalyst-Free Synthesis of Magnesium Nanowires

Haritha Vijayakumar Sheela<sup>a</sup>, Vimal Madhusudhanan<sup>a</sup> and Gopi Krishnan<sup>\*a</sup>

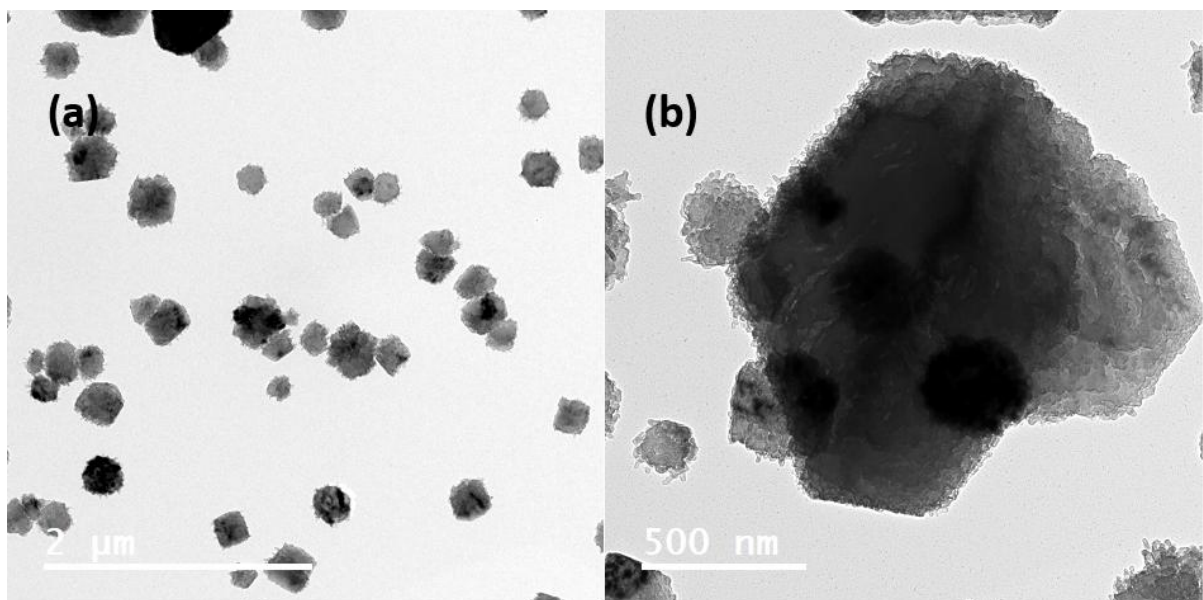
*a Amrita Centre for Nanosciences and Molecular Medicine, Amrita Vishwa Vidyapeetham,  
Kochi, Kerala 682041, India.*

**Corresponding Author**

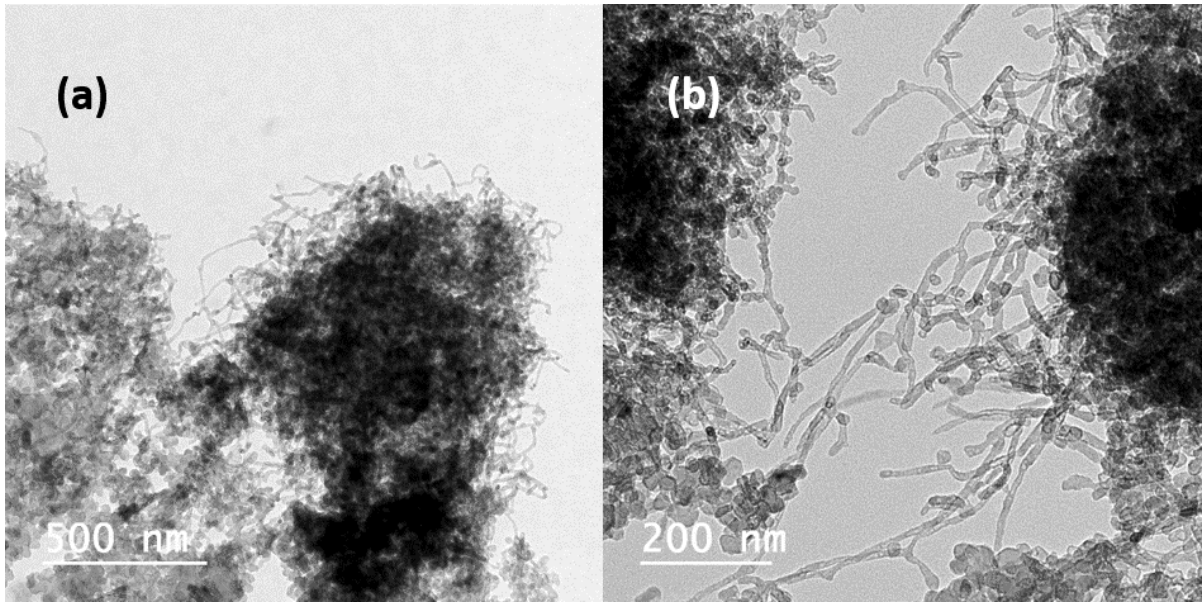
Email: [gopi.k.krish@gmail.com](mailto:gopi.k.krish@gmail.com)



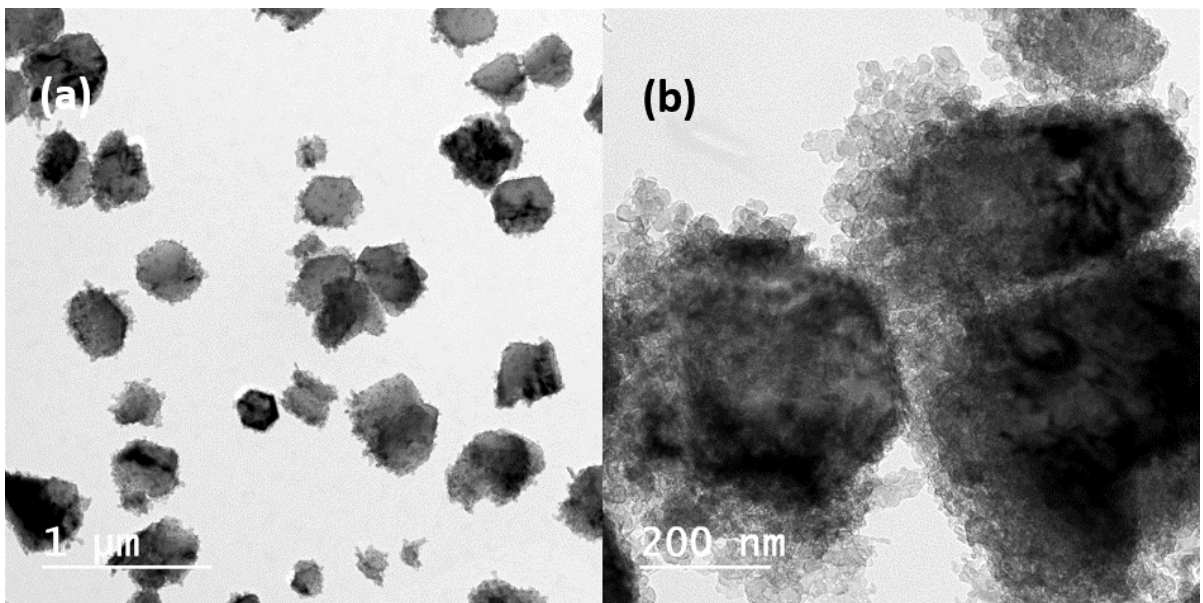
**Figure S1:** (a) represents the Bright-field TEM image that is clearly showing orientation attachment of two Mg nanoparticles and (b) indicates the corresponding High-resolution image, which exhibits a mirror-like twin boundary with an Mg lattice orientation of (101).



**Figure S2:** (a) and (b) represents the Bright-field TEM images of quasi-melted Mg nanostructures that are deposited on a carbon coated TEM grid at an evaporation temperature of 600°C for a holding duration of 2min 30secs.



**Figure S3:** (a) and (b) represents the Bright-field TEM mages of Mg nanowires that are showing a particle attachment growth from the surface of the microparticles at a base pressure of  $10^{-3}$  mbar.



**Figure S4:** (a) and (b) represents the bright-field TEM images of Mg particles transforming into Mg nanoparticles at an evaporation of  $600^{\circ}\text{C}$  and a substrate temperature of  $150^{\circ}\text{C}$ .