

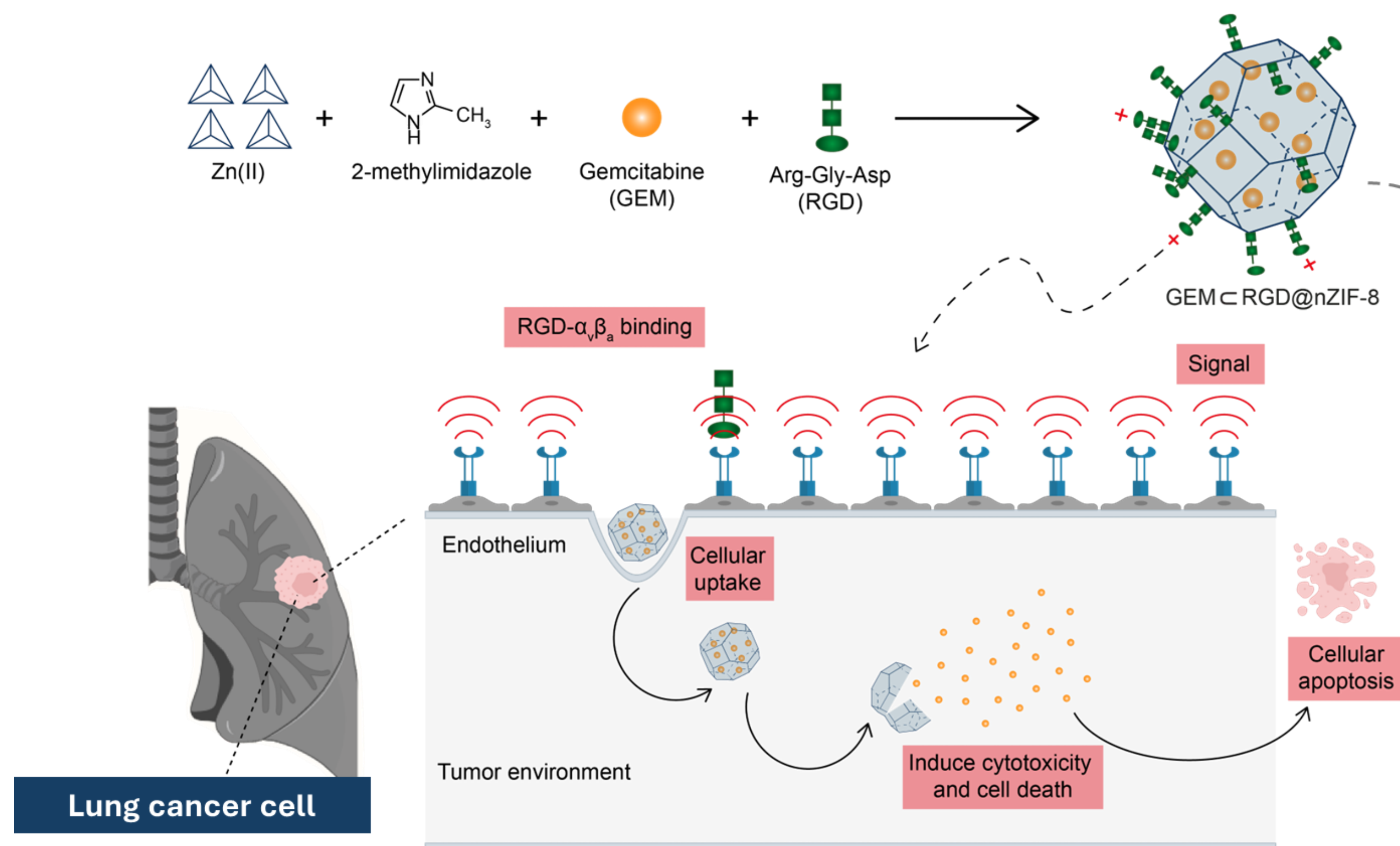
THE CHALLENGE

- Existing chemotherapy treatments often lack specificity, resulting in considerable damage to healthy tissues.
- Urgent need for active nano-delivery systems for selective cancer cell targeting.

RESEARCH GOAL

Development of a **safe nanoplatform** that has **higher selectivity towards lung cancer cells**

EXPERIMENTAL

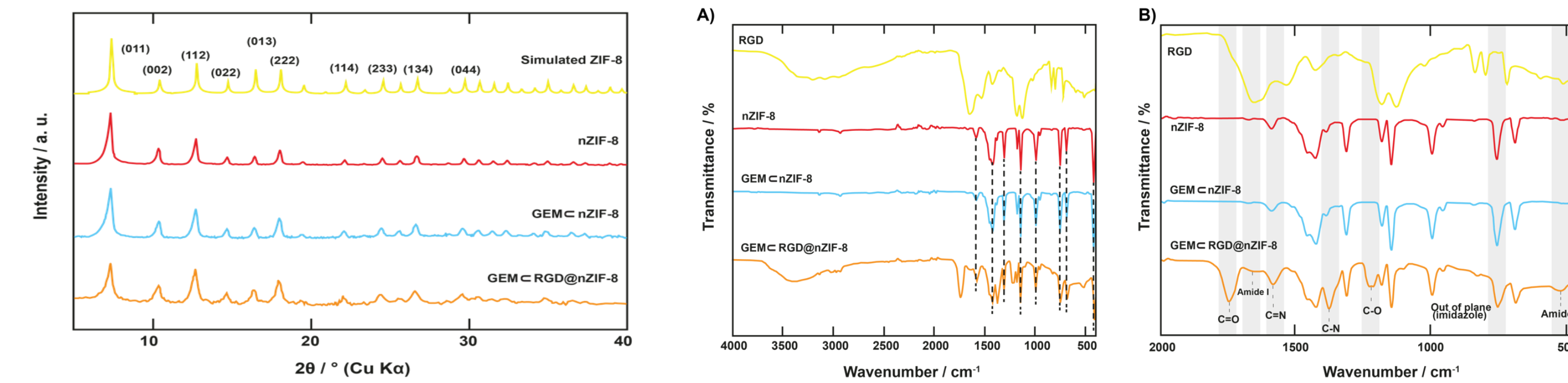


REFERENCES

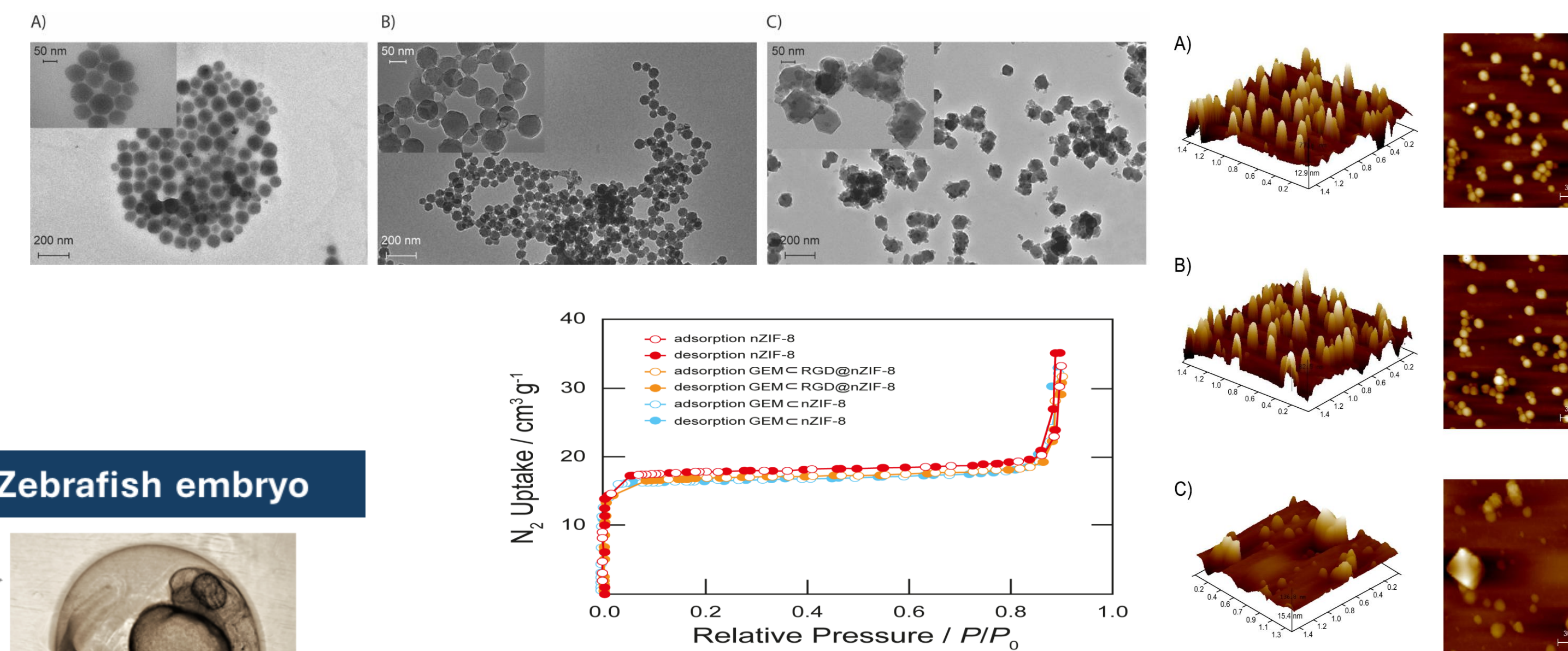
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NANOPLATFOM DEVELOPMENT

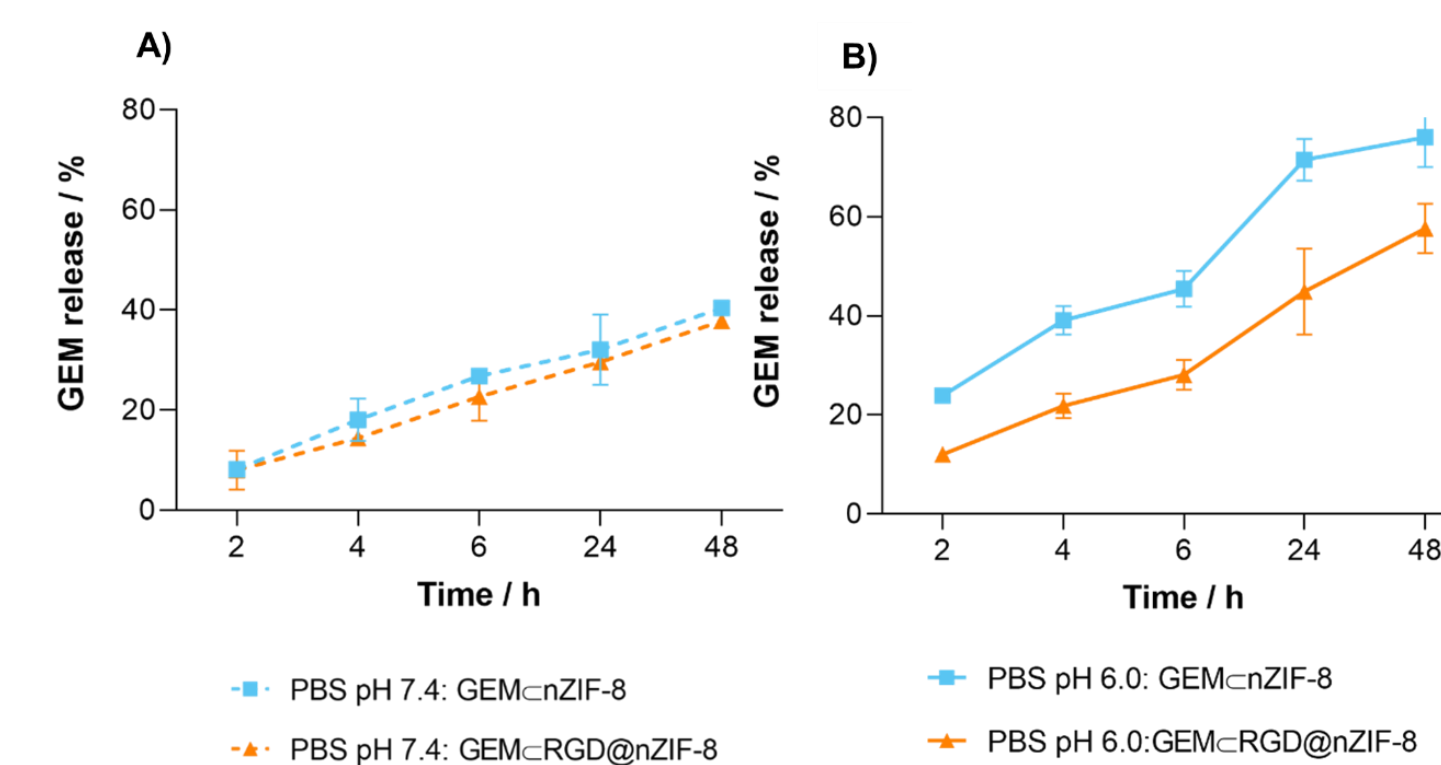
Successful of developing GEM@RGD@nZIF-8 was proved by spectroscopy and microscopy methods



PXRD diffraction peaks of nZIF-8, GEM@nZIF-8, and GEM@RGD@nZIF-8 were well retained. FTIR evidence for chemical bond formation.



TEM and AFM visualized the RGD functionalization. BET proved the adsorption-desorption changes of nanoplatforms.

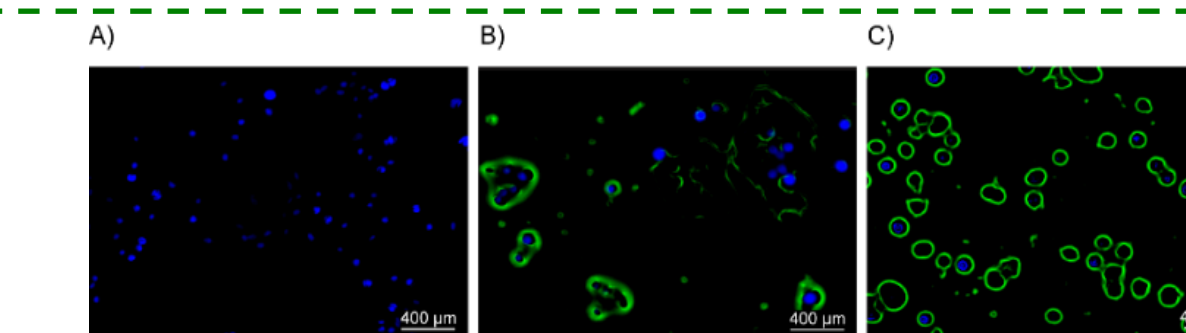


pH-responsive and **controlled** in tumour-environment mimicking acidic media (PBS solution with **pH = 6.0**) than neutral media (PBS solution with pH = 7.4)

RESULTS

CELLULAR STUDIES

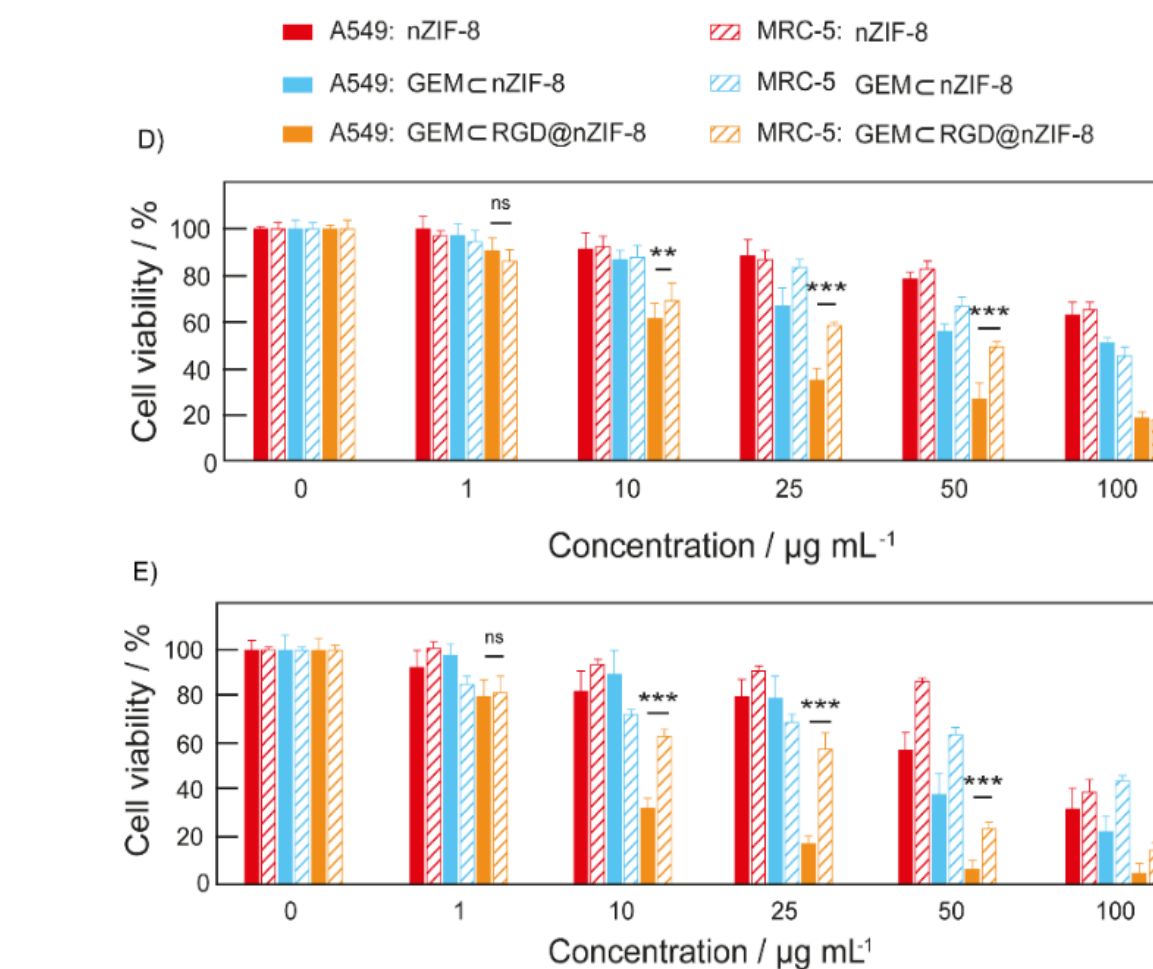
Higher uptake, toxicity induction, and selective towards lung cancer cell, A549 compared to normal cell, MRC-5



Selectivity Index(SI)

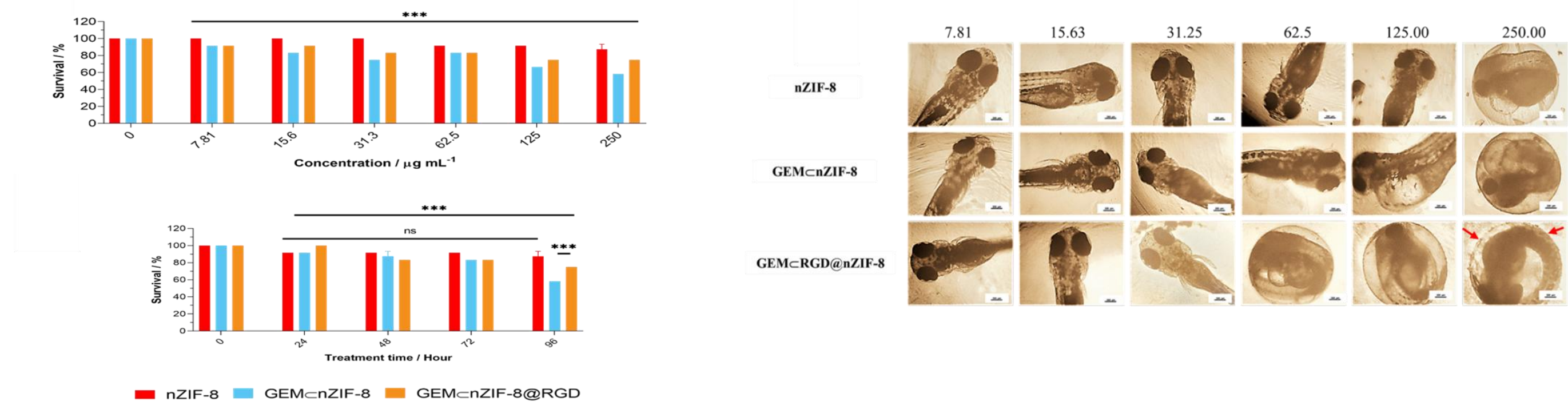
3.98

Good selectivity
towards
lung cancer cell



ZEBRAFISH EMBRYOS STUDIES

Low-toxicity profile in healthy zebrafish embryos



Low-toxicity profile of the nanoplatform, with a high lethal concentration (LC50 > 250 µg mL⁻¹) and minimal observed malformations.

CONCLUSION

Cancer cell-targeted nanotherapeutic. Efficient payload delivery to tumors. Favorable safety profile in testing. Promising candidate for safer, more effective chemotherapy regimens.

ACKNOWLEDGEMENT

Ministry of Higher Education, Malaysia under LRGS NanoMiTe (Grant RU029-2014, No. 5526306). Universiti Putra Malaysia (Grant GP-IPB/2017, No. 9580901).

