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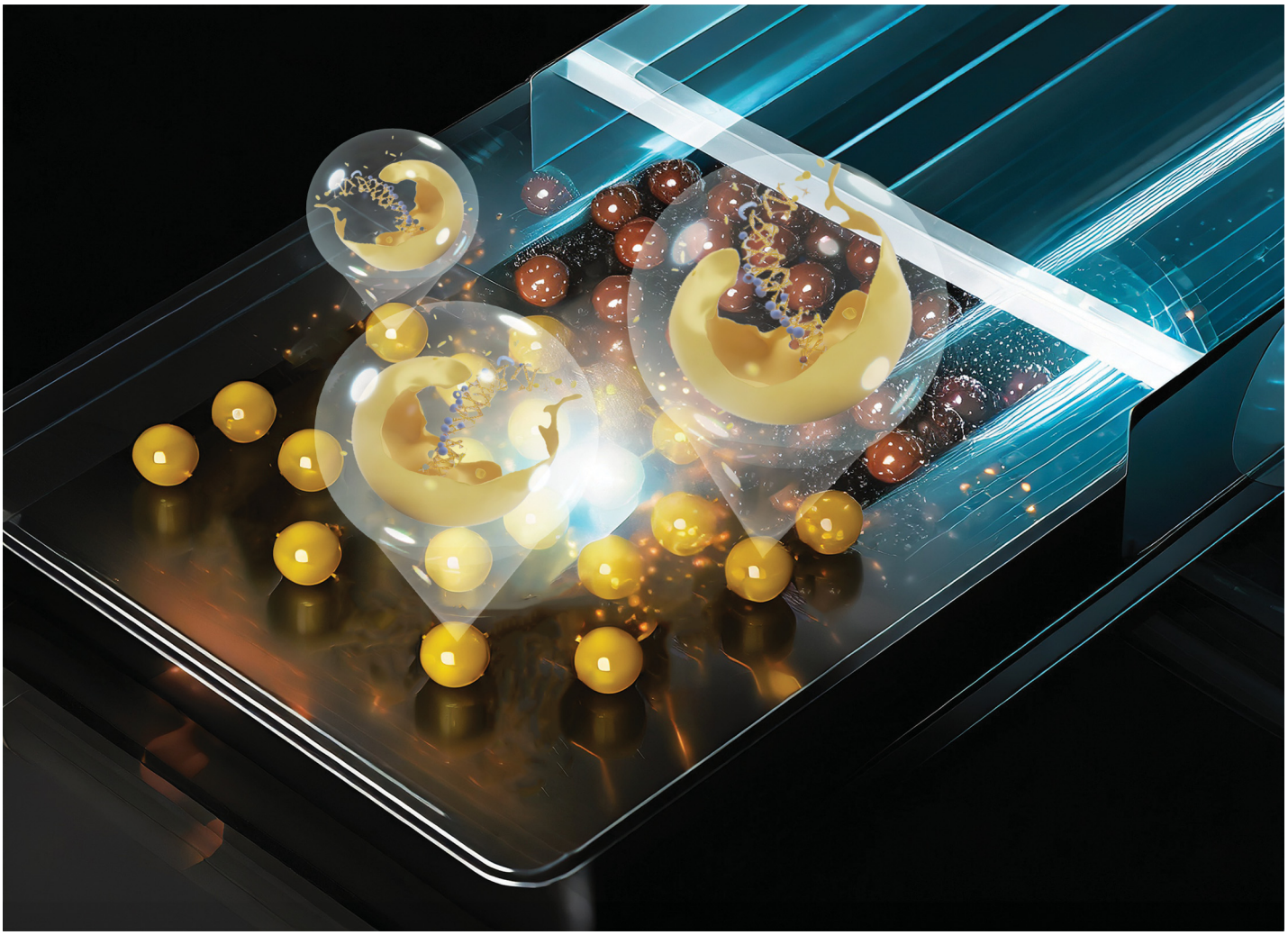

Showcasing research from Professor Ke Du's laboratory, Chemical and Environmental Engineering Department, University of California, Riverside, USA.

Pneumatic nano-sieve for CRISPR-based detection of drug-resistant bacteria

We present a pneumatically-regulated nano-sieve device with packed magnetic beads for rapid and efficient detection of antibiotic-resistant bacteria from human plasma. This innovative and flexible pneumatic membrane can reduce the hydrodynamic pressure, thereby improving the pressure-driven separation. Combining this device, recombinase polymerase amplification, and CRISPR-Cas12 assay, we achieve an on-chip detection limit of 100 CFU mL under 4 hours. This research significantly advances the field of nanoscience and nanotechnology, thus offering valuable insights and promising applications in biomedical diagnostics.

As featured in:

See Ke Du *et al.*, *Nanoscale Horiz.*, 2023, **8**, 1677.

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