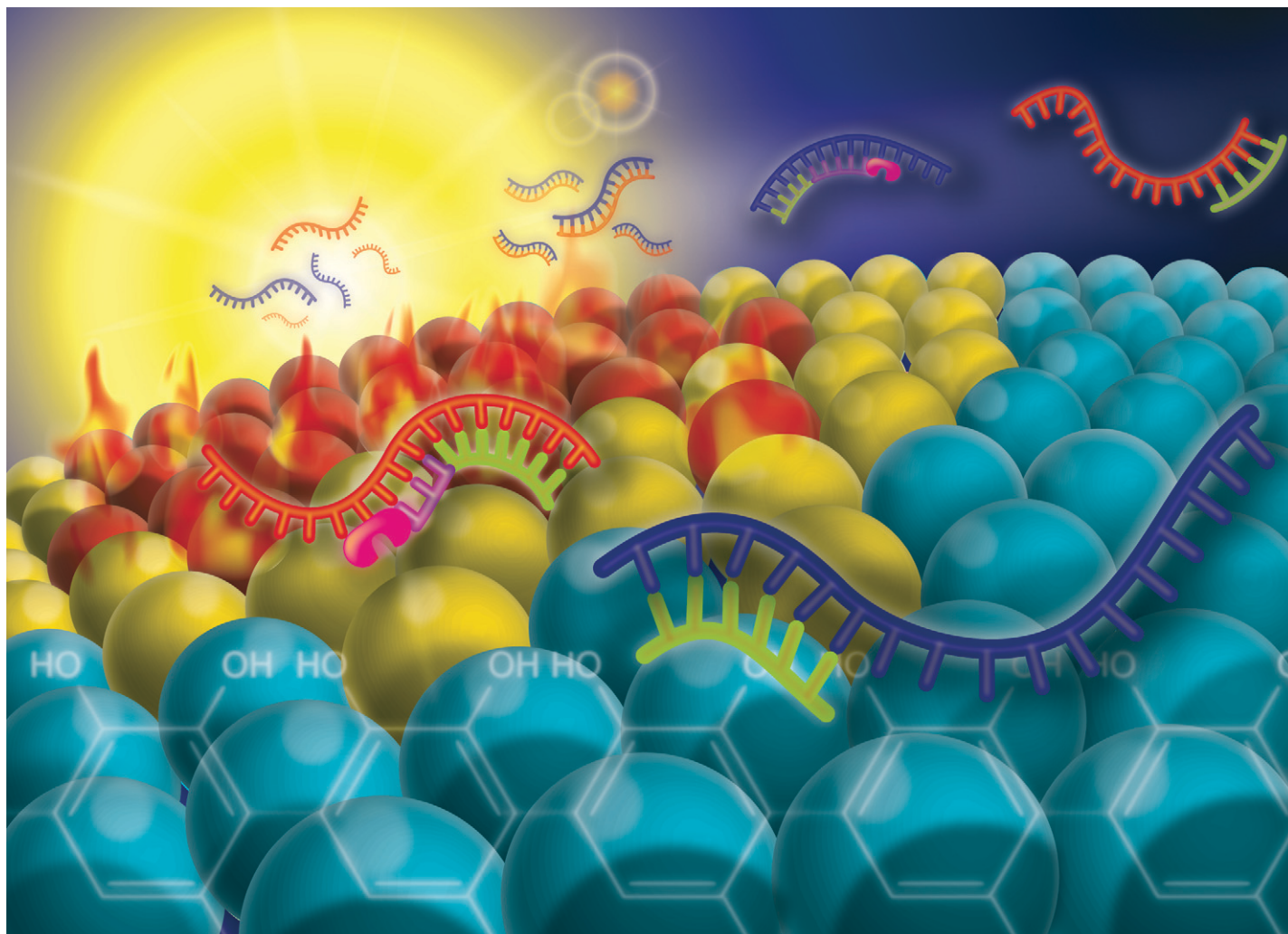




Showcasing research from Professor Nae Yoon Lee's laboratory, Department of BioNano Technology, Gachon University, South Korea.

Polydopamine-mediated gold nanoparticle coating strategy and its application in photothermal polymerase chain reaction

Materials with high light-to-heat conversion efficiencies offer valuable merit enabling rapid and remote heating. Here, we investigated a universal coating strategy to impart photothermal features to various surfaces mediated by polydopamine, a mussel foot-inspired polymer which served as an intermediate layer, to anchor polyethyleneimine and subsequently capture gold nanoparticles. The photothermal heating efficiency was further enhanced by electroless gold deposition. Using this device, PCR amplification was successfully performed in 12 min enabled by light-triggered rapid thermal cycling.

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The image was designed and illustrated by Dr. Woori Chae.

As featured in:



See Nae Yoon Lee *et al.*,
Lab Chip, 2025, **25**, 1429.