



"El saber de mis hijos  
hará mi grandeza"

# Smart Nanobiosensor for Accessible, Real-Time Molecular Self-Testing

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Dr. Ratnesh Lal is a distinguished professor at the University of California, San Diego (UCSD), jointly appointed in the Departments of Bioengineering, Mechanical and Aerospace Engineering, and the Materials Science Program. He also serves as the Co-Director of the Center for Excellence in Nanomedicine and Engineering and leads the Transformative Medicine Program at UCSD. His work bridges nanotechnology, biomaterials, and medicine through multidisciplinary research initiatives and translational innovation.

Dr. Lal earned his Ph.D. in Biophysics and has held prestigious academic and research positions, including at the University of Chicago and the National Institutes of Health (NIH). His scientific contributions span fundamental and applied domains, including nanomedicine, biomolecular engineering, biosensing, ion-channel biophysics, and targeted therapeutics. He has authored more than 200 peer-reviewed publications, contributed multiple book chapters, and holds over 20 patents in areas such as nano-biosensor platforms, drug delivery systems, regenerative engineering, and advanced diagnostic technologies.

His pioneering efforts have led to the development of innovative nanodevices for early disease detection and personalized treatment, particularly for cardiovascular disease, neurological disorders, and cancer. Several of his technologies have been licensed and translated toward clinical applications, reflecting his commitment to advancing precision medicine and improving patient outcomes.

