

Sensors & Diagnostics

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IN THIS ISSUE

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Cover

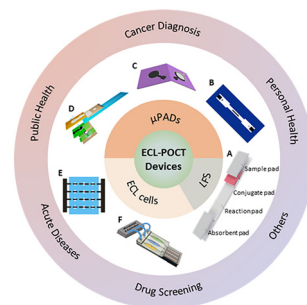
See Jingjing Zhang *et al.*, pp. 632–639.
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CRITICAL REVIEWS

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Electrochemiluminescence devices for point-of-care testing

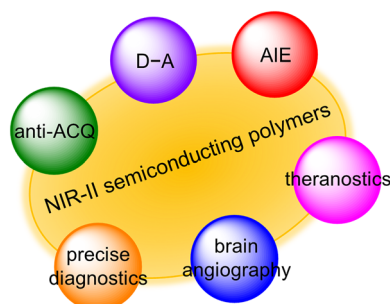
Xudong Ying, Lin Zhou, Wenxuan Fu, Yafeng Wang and Bin Su*



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NIR-II semiconducting polymers for *in vivo* high-resolution imaging and theranostics

Xiaoying Kang, Shuai Yin, Jianwen Song, Yuan Zhang and Ji Qi*



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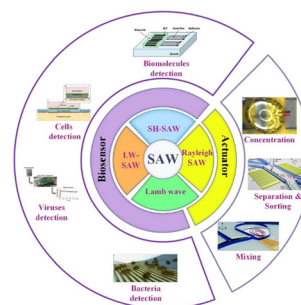


CRITICAL REVIEWS

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Surface acoustic wave based microfluidic devices for biological applications

Xianglian Liu, Xuan Chen, Ziwei Yang, He Xia, Chuanyu Zhang and Xueyong Wei*

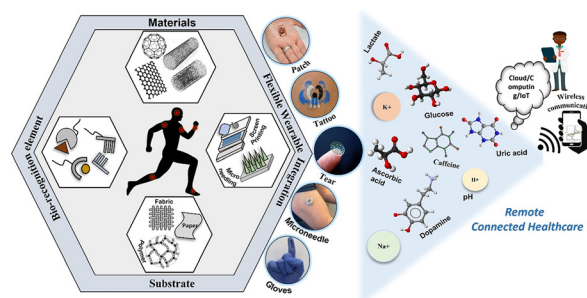


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Carbon-based electrochemical biosensors as diagnostic platforms for connected decentralized healthcare

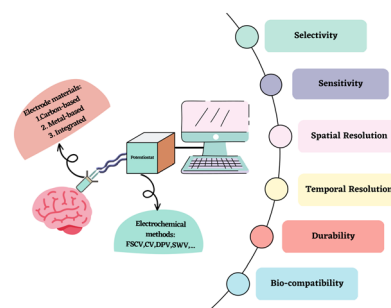
Aqsa Khan, Emily DeVoe and Silvana Andreescu*



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Developing an electrochemical sensor for the *in vivo* measurements of dopamine

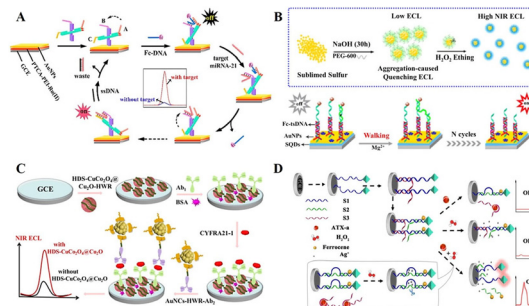
Naela Delmo, Bahar Mostafiz, Ashley E. Ross, Johanna Suni and Emilia Peltola*



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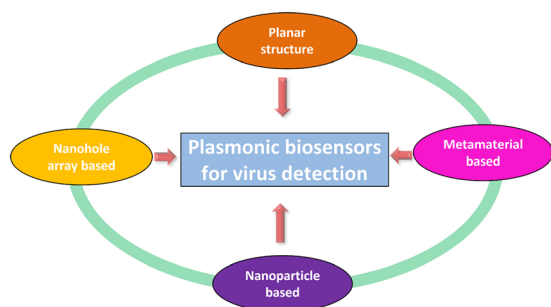
Recent advances in DNA-based electrogenerated chemiluminescence biosensors

Jingjing Zhang, Jingfeng Zhu and Jie Chao*



TUTORIAL REVIEWS

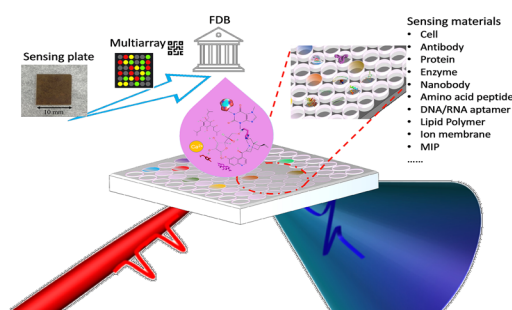
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**Plasmonic and metamaterial biosensors: a game-changer for virus detection**

Junfei Wang, Zhenyu Xu and Domna G. Kotsifaki*

PERSPECTIVE

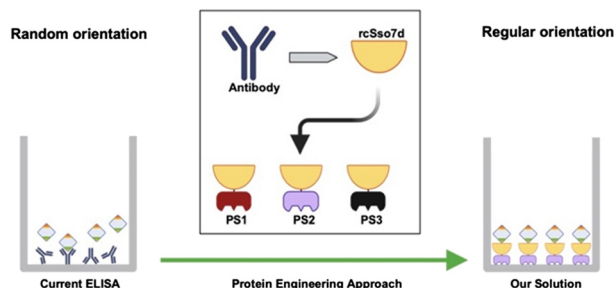
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**All-in-one terahertz taste sensor: integrated electronic and bioelectronic tongues**

Jin Wang,* Kenji Sakai and Toshihiko Kiwa

COMMUNICATION

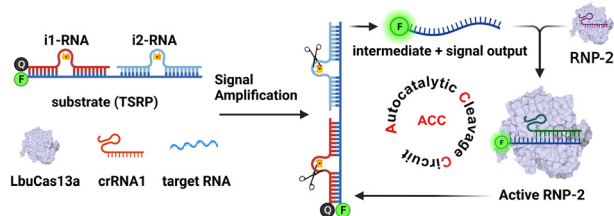
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**Engineering thermostable affinity proteins for use in high-throughput immunoassay formats**

Huan Jia, Nazirulmubin Abdul Moomen, Jeanette Leong, Patthara Kongsuphol, Zhi Feng Sherman Lim, Carmen Sze Min Pui, Yuxuan Tan, Ki-Joo Sung and Hadley D. Sikes*

PAPERS

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**Target-triggered CRISPR-Cas13a autocatalysis-driven amplification strategy for one-step detection of circadian clock gene**

Zhiyuan Feng, Yi Xue, Yangfang Yun, Zheng Liu and Jingjing Zhang*



An all-solid-state potentiometric microsensor for real-time monitoring of the calcification process by *Bacillus subtilis* biofilms

The diagram illustrates the CO₂ capture process by a *Bacillus subtilis* biofilm. It shows a cross-section of the biofilm, which is a yellowish-brown layer. Above the biofilm is the 'Air' phase, and below it is the 'Seawater' phase. CO₂ molecules (represented by red and grey spheres) move from the air into the seawater and then into the biofilm. Ca²⁺ ions (represented by blue spheres) move from the seawater into the biofilm. Inside the biofilm, CO₂ and Ca²⁺ react to form CaCO₃ precipitates (represented by red and blue spheres). The biofilm is labeled 'Bacillus subtilis biofilm' at the bottom. A blue arrow points from the seawater to the biofilm, labeled 'Ca²⁺-ISiME'. A red arrow points from the air to the seawater, labeled 'CO₂'. A blue arrow points from the seawater to the biofilm, labeled 'CO₂'. A red arrow points from the biofilm to the seawater, labeled 'CaCO₃'. A blue arrow points from the seawater to the biofilm, labeled 'Ca²⁺'.

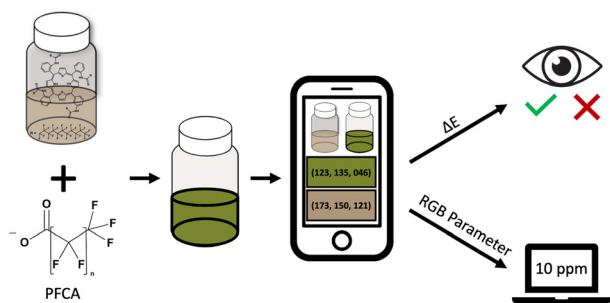
Green synthesis of glucose-capped stable silver nanoparticles: a cost-effective sensor for the selective detection of Hg²⁺ ions in aqueous solutions

The diagram illustrates the synthesis and application of AgNPs. It begins with Tulsi leaves, which are used to synthesize AgNPs from AgNO_3 . The resulting AgNPs are then used as Hg^{2+} ion sensors. A graph shows the absorbance response of the AgNPs to different concentrations of Hg^{2+} (0.0, 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2, 3.4, 3.6, 3.8, 4.0, 4.2, 4.4, 4.6, 4.8, 5.0, 5.2, 5.4, 5.6, 5.8, 6.0, 6.2, 6.4, 6.6, 6.8, 7.0, 7.2, 7.4, 7.6, 7.8, 8.0, 8.2, 8.4, 8.6, 8.8, 9.0, 9.2, 9.4, 9.6, 9.8, 10.0, 10.2, 10.4, 10.6, 10.8, 11.0, 11.2, 11.4, 11.6, 11.8, 12.0, 12.2, 12.4, 12.6, 12.8, 13.0, 13.2, 13.4, 13.6, 13.8, 14.0, 14.2, 14.4, 14.6, 14.8, 15.0, 15.2, 15.4, 15.6, 15.8, 16.0, 16.2, 16.4, 16.6, 16.8, 17.0, 17.2, 17.4, 17.6, 17.8, 18.0, 18.2, 18.4, 18.6, 18.8, 19.0, 19.2, 19.4, 19.6, 19.8, 20.0, 20.2, 20.4, 20.6, 20.8, 21.0, 21.2, 21.4, 21.6, 21.8, 22.0, 22.2, 22.4, 22.6, 22.8, 23.0, 23.2, 23.4, 23.6, 23.8, 24.0, 24.2, 24.4, 24.6, 24.8, 25.0, 25.2, 25.4, 25.6, 25.8, 26.0, 26.2, 26.4, 26.6, 26.8, 27.0, 27.2, 27.4, 27.6, 27.8, 28.0, 28.2, 28.4, 28.6, 28.8, 29.0, 29.2, 29.4, 29.6, 29.8, 30.0, 30.2, 30.4, 30.6, 30.8, 31.0, 31.2, 31.4, 31.6, 31.8, 32.0, 32.2, 32.4, 32.6, 32.8, 33.0, 33.2, 33.4, 33.6, 33.8, 34.0, 34.2, 34.4, 34.6, 34.8, 35.0, 35.2, 35.4, 35.6, 35.8, 36.0, 36.2, 36.4, 36.6, 36.8, 37.0, 37.2, 37.4, 37.6, 37.8, 38.0, 38.2, 38.4, 38.6, 38.8, 39.0, 39.2, 39.4, 39.6, 39.8, 40.0, 40.2, 40.4, 40.6, 40.8, 41.0, 41.2, 41.4, 41.6, 41.8, 42.0, 42.2, 42.4, 42.6, 42.8, 43.0, 43.2, 43.4, 43.6, 43.8, 44.0, 44.2, 44.4, 44.6, 44.8, 45.0, 45.2, 45.4, 45.6, 45.8, 46.0, 46.2, 46.4, 46.6, 46.8, 47.0, 47.2, 47.4, 47.6, 47.8, 48.0, 48.2, 48.4, 48.6, 48.8, 49.0, 49.2, 49.4, 49.6, 49.8, 50.0, 50.2, 50.4, 50.6, 50.8, 51.0, 51.2, 51.4, 51.6, 51.8, 52.0, 52.2, 52.4, 52.6, 52.8, 53.0, 53.2, 53.4, 53.6, 53.8, 54.0, 54.2, 54.4, 54.6, 54.8, 55.0, 55.2, 55.4, 55.6, 55.8, 56.0, 56.2, 56.4, 56.6, 56.8, 57.0, 57.2, 57.4, 57.6, 57.8, 58.0, 58.2, 58.4, 58.6, 58.8, 59.0, 59.2, 59.4, 59.6, 59.8, 60.0, 60.2, 60.4, 60.6, 60.8, 61.0, 61.2, 61.4, 61.6, 61.8, 62.0, 62.2, 62.4, 62.6, 62.8, 63.0, 63.2, 63.4, 63.6, 63.8, 64.0, 64.2, 64.4, 64.6, 64.8, 65.0, 65.2, 65.4, 65.6, 65.8, 66.0, 66.2, 66.4, 66.6, 66.8, 67.0, 67.2, 67.4, 67.6, 67.8, 68.0, 68.2, 68.4, 68.6, 68.8, 69.0, 69.2, 69.4, 69.6, 69.8, 70.0, 70.2, 70.4, 70.6, 70.8, 71.0, 71.2, 71.4, 71.6, 71.8, 72.0, 72.2, 72.4, 72.6, 72.8, 73.0, 73.2, 73.4, 73.6, 73.8, 74.0, 74.2, 74.4, 74.6, 74.8, 75.0, 75.2, 75.4, 75.6, 75.8, 76.0, 76.2, 76.4, 76.6, 76.8, 77.0, 77.2, 77.4, 77.6, 77.8, 78.0, 78.2, 78.4, 78.6, 78.8, 79.0, 79.2, 79.4, 79.6, 79.8, 80.0, 80.2, 80.4, 80.6, 80.8, 81.0, 81.2, 81.4, 81.6, 81.8, 82.0, 82.2, 82.4, 82.6, 82.8, 83.0, 83.2, 83.4, 83.6, 83.8, 84.0, 84.2, 84.4, 84.6, 84.8, 85.0, 85.2, 85.4, 85.6, 85.8, 86.0, 86.2, 86.4, 86.6, 86.8, 87.0, 87.2, 87.4, 87.6, 87.8, 88.0, 88.2, 88.4, 88.6, 88.8, 89.0, 89.2, 89.4, 89.6, 89.8, 90.0, 90.2, 90.4, 90.6, 90.8, 91.0, 91.2, 91.4, 91.6, 91.8, 92.0, 92.2, 92.4, 92.6, 92.8, 93.0, 93.2, 93.4, 93.6, 93.8, 94.0, 94.2, 94.4, 94.6, 94.8, 95.0, 95.2, 95.4, 95.6, 95.8, 96.0, 96.2, 96.4, 96.6, 96.8, 97.0, 97.2, 97.4, 97.6, 97.8, 98.0, 98.2, 98.4, 98.6, 98.8, 99.0, 99.2, 99.4, 99.6, 99.8, 100.0, 100.2, 100.4, 100.6, 100.8, 101.0, 101.2, 101.4, 101.6, 101.8, 102.0, 102.2, 102.4, 102.6, 102.8, 103.0, 103.2, 103.4, 103.6, 103.8, 104.0, 104.2, 104.4, 104.6, 104.8, 105.0, 105.2, 105.4, 105.6, 105.8, 106.0, 106.2, 106.4, 106.6, 106.8, 107.0, 107.2, 107.4, 107.6, 107.8, 108.0, 108.2, 108.4, 108.6, 108.8, 109.0, 109.2, 109.4, 109.6, 109.8, 110.0, 110.2, 110.4, 110.6, 110.8, 111.0, 111.2, 111.4, 111.6, 111.8, 112.0, 112.2, 112.4, 112.6, 112.8, 113.0, 113.2, 113.4, 113.6, 113.8, 114.0, 114.2, 114.4, 114.6, 114.8, 115.0, 115.2, 115.4, 115.6, 115.8, 116.0, 116.2, 116.4, 116.6, 116.8, 117.0, 117.2, 117.4, 117.6, 117.8, 118.0, 118.2, 118.4, 118.6, 118.8, 119.0, 119.2, 119.4, 119.6, 119.8, 120.0, 120.2, 120.4, 120.6, 120.8, 121.0, 121.2, 121.4, 121.6, 121.8, 122.0, 122.2, 122.4, 122.6, 122.8, 123.0, 123.2, 123.4, 123.6, 123.8, 124.0, 124.2, 124.4, 124.6, 124.8, 125.0, 125.2, 125.4, 125.6, 125.8, 126.0, 126.2, 126.4, 126.6, 126.8, 127.0, 127.2, 127.4

Robust heart rate monitoring by a wearable stethoscope based on signal processing

A benzimidazole-derived fluorescent chemosensor for Cu(II)-selective turn-off and Zn(II)-selective ratiometric turn-on detection in aqueous solutions

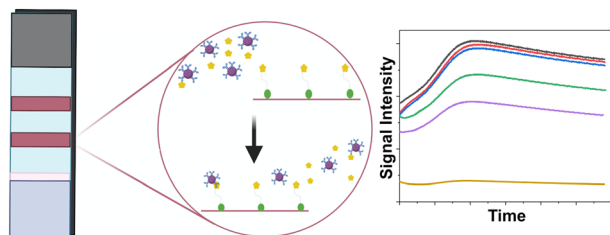
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Colorimetric determination of perfluorocarboxylic acids using porphyrin hosts and mobile phone photographs

Chloe M. Taylor, Michael C. Breadmore and Nathan L. Kilah*

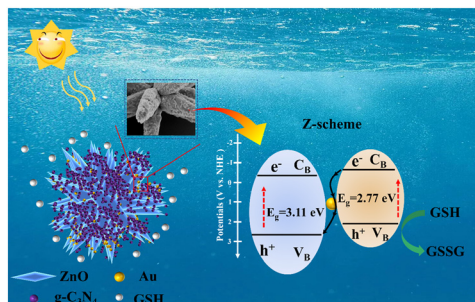
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Computational modelling of a competitive immunoassay in lateral flow diagnostic devices

Rohan Nalumachu, Anna Anandita and Dharitri Rath

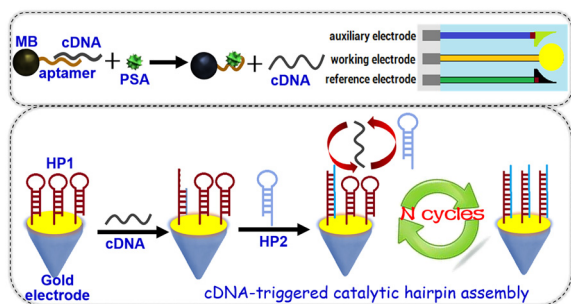
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Preparation of Z-scheme 3D ZnO/Au/g-C₃N₄ heterostructures for the photoelectrochemical sensing of glutathione

Weixin Li, Xinyang Wang, Jiayi Huang, Min Zhao,* Jiao Yang, Fang Luo, Bin Qiu, Jian Wang* and Zhenyu Lin*

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A nucleic acid-based magnetic potentiometric aptasensing platform for indirect detection of prostate-specific antigen with catalytic hairpin assembly

Shuo Tian, Lingting Huang, Yuan Gao, Zhichao Yu and Dianping Tang*

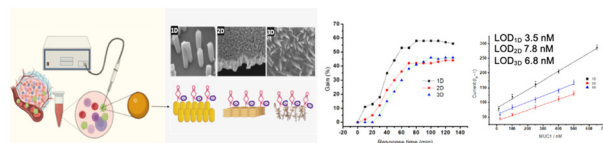


PAPERS

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Nano-dimensionality effect on electrochemical aptamer-based sensor performance for MUC1 liquid biopsy

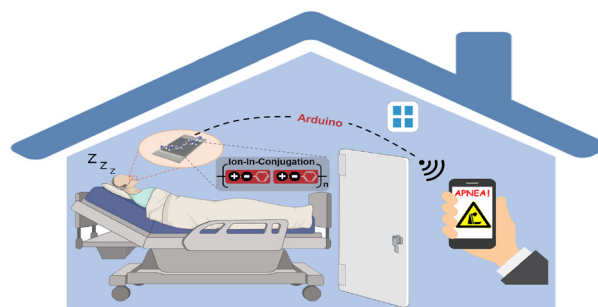
Ashkan Koushanpour, Edward J. Harvey and Geraldine E. Merle*



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Noninvasive and point-of-care screening of snoring by breath monitoring using ion-in-conjugation polymer-based humidity sensors

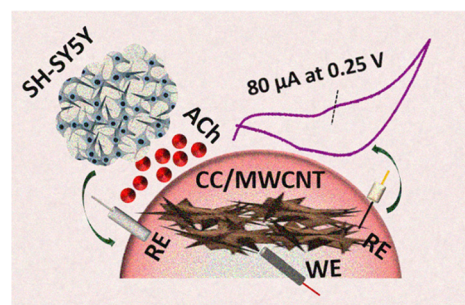
Ze-Kun Chen, Wei-Wei Bai, Ying-Qian Huo* and Jing-Hui He*



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Braided copper cobaltite/MWCNT composites enable acetylcholine detection at sub-nanomolar levels *in vitro*

Rasha Rahman Poolakkandy, Neelakandan Annamalai Ramalakshmi, Krishna Aravind Padmalayam, Rajanikant Golgodu Krishnamurthy and Mini Mol Menampambath*



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Moving microcapillary antibiotic susceptibility testing (mcAST) towards the clinic: unravelling kinetics of detection of uropathogenic *E. coli*, mass-manufacturing and usability for detection of urinary tract infections in human urine

Sarah H. Needs*, Jeremy Pivetal, Jessica Hayward, Stephen P. Kidd, HoYin Lam, Tai Diep, Kiran Gill, Martin Woodward, Nuno M. Reis* and Alexander D. Edwards*

