

## IN THIS ISSUE

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### Cover

See Mehdi Javanmard *et al.*,  
pp. 1719–1726.

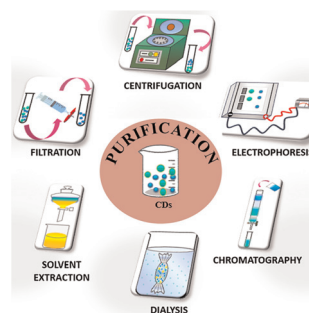
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Mehdi Javanmard from  
*Analyst*, 2024, **149**, 1719.

## CRITICAL REVIEW

1680

### Separation and purification of fluorescent carbon dots – an unmet challenge

Namratha Ullal, Riya Mehta and Dhanya Sunil\*

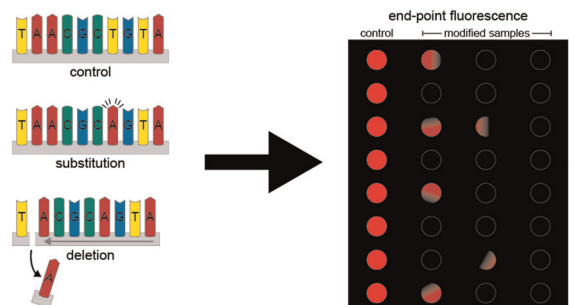


## COMMUNICATIONS

1701

### Effects of single and multiple nucleotide mutations on loop-mediated isothermal amplification

Taylor J. Moehling,\* Erica R. Browne and  
Robert J. Meagher\*



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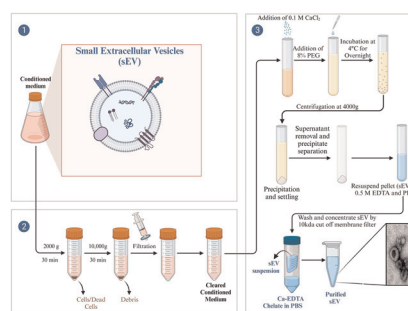
Fundamental questions  
Elemental answers

## COMMUNICATIONS

1709

## Combinatorial effect of calcium chloride and polyethylene glycol on efficient isolation of small extracellular vesicles

Rahmat Asfiya, Grace McCully, Anjugam Paramanatham, Siddharth Das and Akhil Srivastava\*

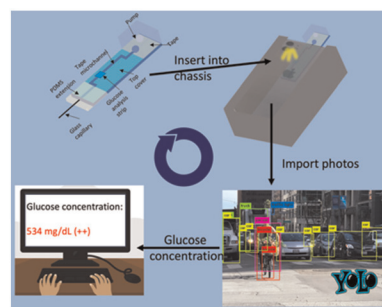


## PAPERS

1719

## A computer vision enhanced smart phone platform for microfluidic urine glucometry

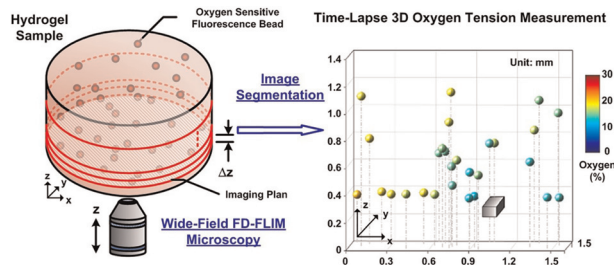
Zhuolun Meng, Muhammad Tayyab, Zhongtian Lin, Hassan Raji and Mehdi Javanmard\*



1727

## Rapid time-lapse 3D oxygen tension measurements within hydrogels using widefield frequency-domain fluorescence lifetime imaging microscopy (FD-FLIM) and image segmentation

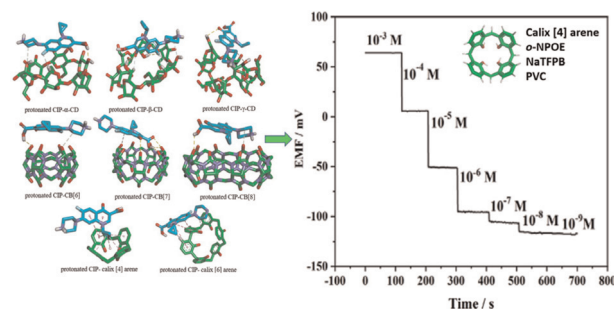
Dao-Ming Chang, Heng-Hua Hsu, Ping-Liang Ko, Wei-Jen Chang, Tung-Han Hsieh, Hsiao-Mei Wu\* and Yi-Chung Tung\*



1738

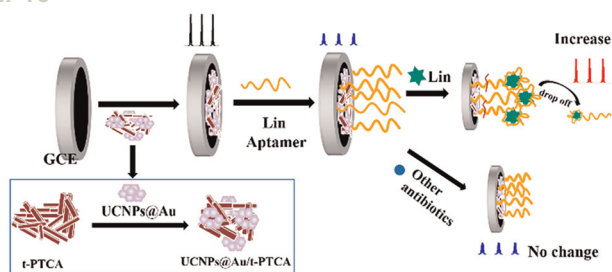
## Polymeric membrane potentiometric antibiotic sensors using computer-aided screening of supramolecular macrocyclic carriers

Aohua Liu, Zhe Liu, Rongning Liang\* and Wei Qin\*



## PAPERS

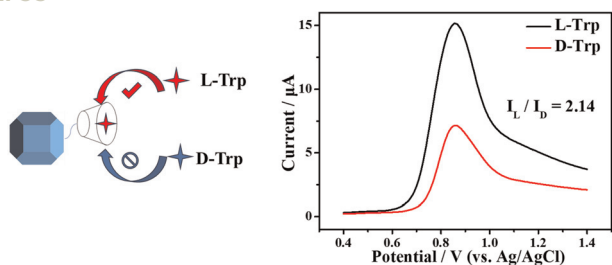
1746



### Supersensitive detection of lincomycin with an ECL aptasensor based on the synergistic integration of gold-functionalized upconversion nanoparticles and thiolated 3,4,9,10-perylene tetracarboxylic acid

Xiaohui Chen,\* Jing Wen, Xueling Shan, Wenchang Wang and Zhidong Chen\*

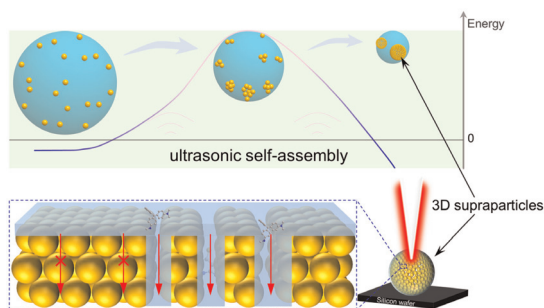
1753



### A chiral metal–organic framework/cyclodextrin sensing interface for the chiral discrimination of tryptophan enantiomers

Haowei Huang, Junyao Li, Wenrong Cai, Datong Wu, Laidi Xu and Yong Kong\*

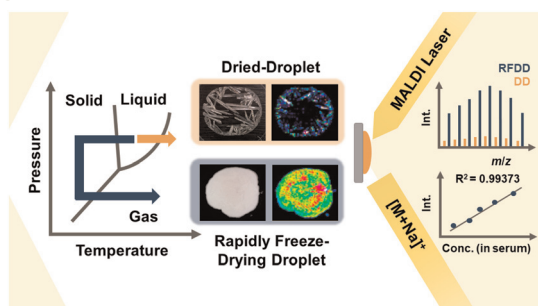
1759



### Ag supraparticles with 3D hot spots to actively capture molecules for sensitive detection by surface enhanced Raman spectroscopy

Mingrui Zhu, Guoliang Zhou, Ronglu Dong, Pan Li\* and Liangbao Yang\*

1766



### Advancing carbohydrate quantification in MALDI mass spectrometry by the rapidly freeze-drying droplet (RFDD) method

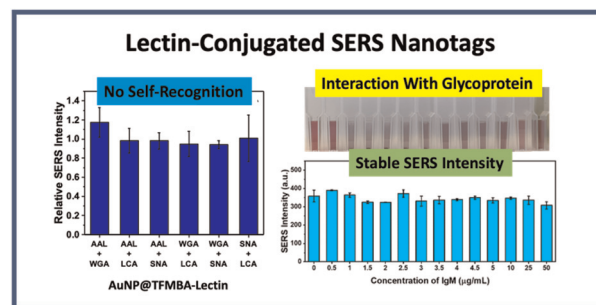
Yu-Cheng Wu, Xin-Wen Zhang, Yi-Ching Huang and I-Chung Lu\*



1774

### Lectin-conjugated nanotags with high SERS stability: selective probes for glycans

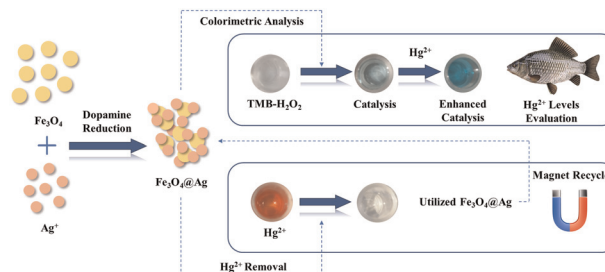
Mohammad Tavakkoli Yaraki,  
Katherine Wongtrakul-Kish, Edward S. X. Moh,  
Nicolle H. Packer\* and Yuling Wang\*



1784

### A selective colorimetric and efficient removal strategy for mercury(II) in aquatic systems using mesoporous Fe<sub>3</sub>O<sub>4</sub>-loaded silver probes

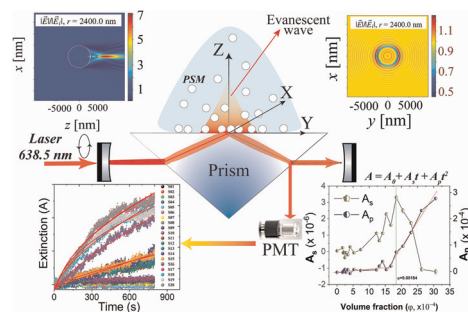
Huilan Chen, Yunyan Li, Ziyi Wang, Di Wang,  
Luping Feng, Shuai Li, Choufei Wu and Hua Wang\*



1791

### Anomalous scattering of polystyrene microparticles revealed by evanescent wave coupled cavity ringdown spectroscopy

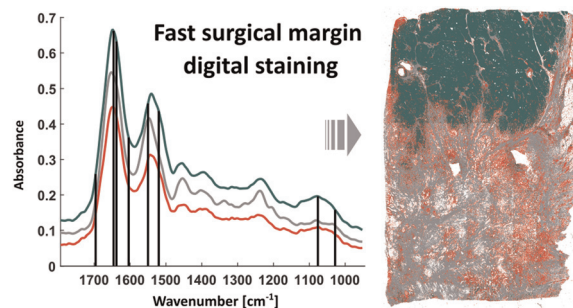
Soumyadipta Chakraborty, Jayeta Banerjee,  
Indrayani Patra, Ardhendu Pal, Puspendu Barik\* and  
Manik Pradhan\*



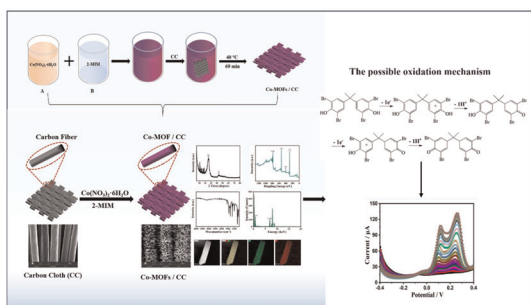
1799

### Fast cancer imaging in pancreatic biopsies using infrared imaging

Paulina Koziol-Bohatkiewicz, Danuta Liberda-Matyja  
and Tomasz P. Wrobel\*



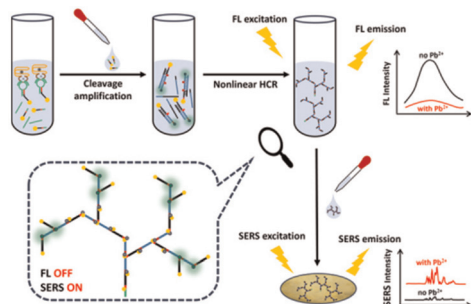
1807



### Fabrication of well-aligned Co-MOF arrays through a controlled and moderate process for the development of a flexible tetrabromobisphenol A sensor

Shiyuan Wang, Yao Chen, Mei Long, Wanyu Li, Yiran Huang, Shiyi Lai, Guiping Yang, Yang Song, Jinfa Chen\* and Guangxia Yu\*

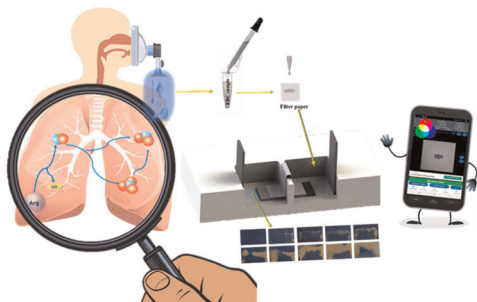
1817



### A novel dual-mode aptasensor based on a multiple amplification system for ultrasensitive detection of lead ions using fluorescence and surface-enhanced Raman spectroscopy

Wanqing Teng, Qi Li, Jing Zhao, Pengfei Shi, Jing Zhang, Mei Yan\* and Shusheng Zhang\*

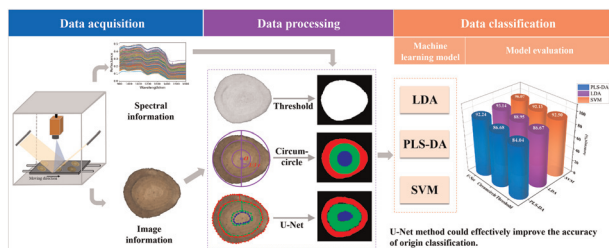
1825



### A visualization method for quickly detecting nitrite ions in breath condensate using a portable closed bipolar electrochemical sensor

Afsaneh Azhdeh,\*  
Mohammad Hossein Mashhadizadeh\* and  
Kristian Birk Buhl

1837



### Improving the geographical origin classification of *Radix glycyrrhizae* (licorice) through hyperspectral imaging assisted by U-Net fine structure recognition

Hui Zhang,\* YiXia Pan, Yuan Chen, HongXu Zhang, JianHui Xie, XingChu Gong, JieQiang Zhu and JiZhong Yan\*

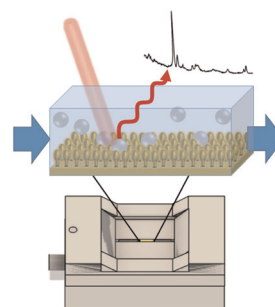


## PAPERS

1849

### A 3D printed sheath flow interface for surface enhanced Raman spectroscopy (SERS) detection in flow

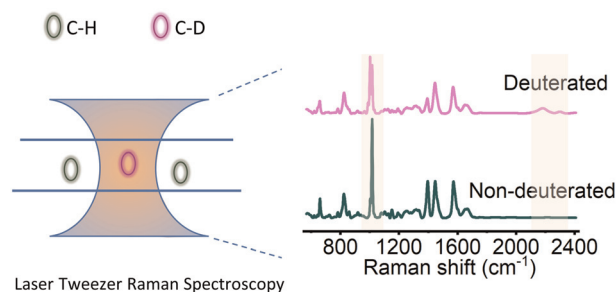
Courtney J. Morder and Zachary D. Schultz\*



1861

### Assessing CaDPA levels, metabolic activity, and spore detection through deuterium labeling

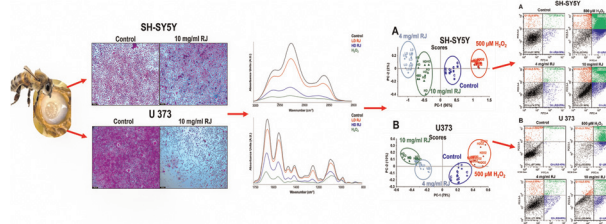
Rasmus Öberg, Timir Baran Sil, André Ohlin, Magnus Andersson\* and Dmitry Malyshev\*



1872

### Exploring the *in vitro* potential of royal jelly against glioblastoma and neuroblastoma: impact on cell proliferation, apoptosis, cell cycle, and the biomolecular content

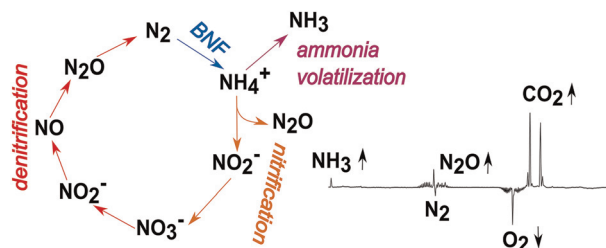
Nihal Simsek Ozek



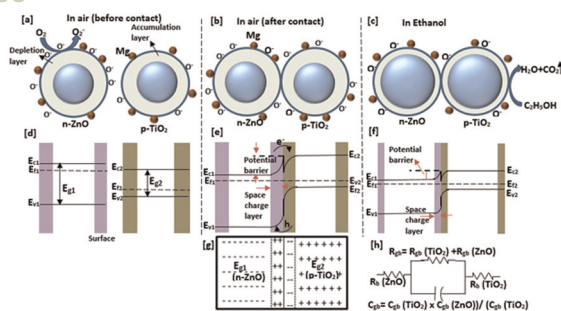
1885

### Comprehensive multi-gas study by means of fiber-enhanced Raman spectroscopy for the investigation of nitrogen cycle processes

Annika Blohm, Christian Domes, Andreas Merian, Sebastian Wolf, Jürgen Popp and Torsten Frosch\*



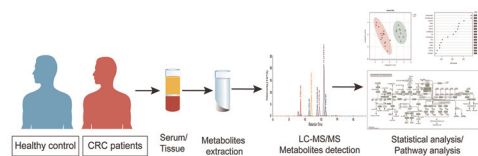
1895



## Frequency-tuned selectivity enhancement of Mg@ZnO–TiO<sub>2</sub> nanoflake-based heterojunction sensor devices

Suman Kumar and Basanta Bhowmik\*

1907



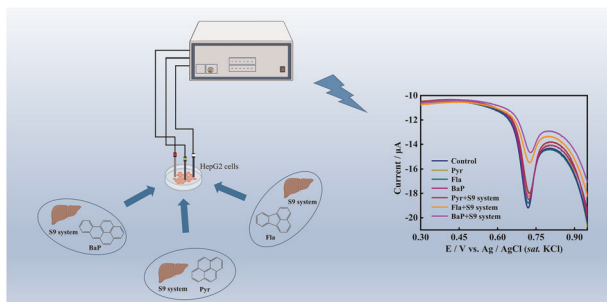
### Highlights

- The arachidonic acid metabolite profiles show that the PGE2 biosynthetic pathway is upregulated in CRC.
- The mPGES-2, the key protein of the PGE2 biosynthetic pathway, is upregulated in CRC.
- Elevation of the PGE2 biosynthetic pathway is associated with macrophage infiltration and CRC progression.

## The arachidonic acid metabolome reveals elevation of prostaglandin E2 biosynthesis in colorectal cancer

Cuiping Zhang, Zuojian Hu, Ziyue Pan, Zhaodong Ji, Xinyi Cao, Hongxiu Yu,\* Xue Qin\* and Ming Guan\*

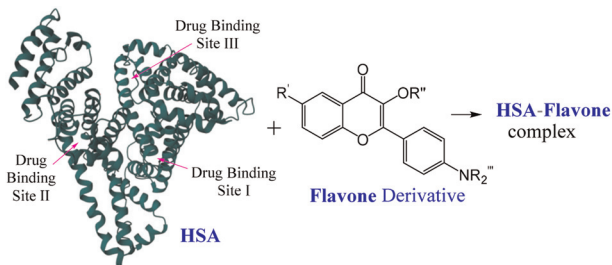
1921



## The toxicity response of the electrochemical signal of the cell to the drug metabolized by the S9 system

Jiahuan Zhang, Chaoqun Fei, Shulan Qi, Jiaqi Fu, Shi Zhou, Zhong Wang, Jinlian Li,\* Yanli Zhao\* and Dongmei Wu\*

1929



## Native mass spectrometry analysis of conjugated HSA and BSA complexes with various flavonoids

Nicolas Alexander, Lucas McDonald, Chrys Wesdemiotis\* and Yi Pang\*

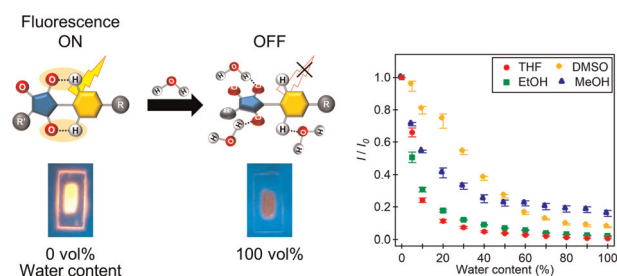


## PAPERS

1939

### Water detection in organic solvents using a copolymer membrane immobilised with a fluorescent intramolecular charge transfer-type dye: effects of intramolecular hydrogen bonds

Ami Morimoto, Kei Shimizu, Naoya Suzuki, Shigeyuki Yagi, Kenji Sueyoshi, Tatsuro Endo and Hideaki Hisamoto\*



1947

### Towards the development of a DNA automaton: modular RNA-cleaving deoxyribozyme logic gates regulated by miRNAs

Viktor V. Smirnov, Valerya S. Drozd, Christina K. Patra, Zain Hussein, Daria S. Rybalko, Anastasia V. Kozlova, Moustapha A. Y. Nour, Tatiana P. Zemerova, Olga S. Kolosova, Arseniy Y. Kalnin and Ahmed A. El-Deeb\*

