

Analyst

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IN THIS ISSUE

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Cover

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Wenxuan Zhong,
Yiping Zhao *et al.*,
pp. 460–469.

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2025, **150**, 460.

EDITORIAL

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150 years of *Analyst* encompassing Raman and SERS development

Karen Faulds, Katsumasa Fujita, Pavel Matousek and Zachary D. Schultz

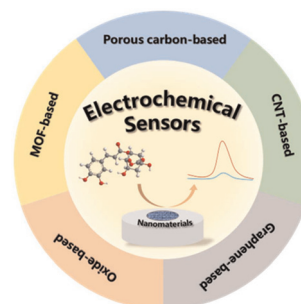


MINIREVIEW

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High-sensitivity and stability electrochemical sensors for chlorogenic acid detection based on optimally engineered nanomaterials

Lin-Wei Chen,* Nannan Lu and Lei Wang*



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Functional regression for SERS spectrum transformation across diverse instruments

The flowchart illustrates the proposed machine learning model for target detection, divided into two main stages: Transformation and Evaluation.

Transformation:

- Target Spectra:** The process begins with Target Spectra, represented by a graph of Intensity versus Wavenumber (cm^{-1}). The graph shows a red line labeled "Testing Target".
- Functional Regression Model:** The Target Spectra are processed by a Functional Regression Model, which outputs Pseudo-Standard Spectra.
- Pseudo-Standard Spectra:** The output is Pseudo-Standard Spectra, represented by a graph of Normalized Intensity versus Wavenumber (cm^{-1}). The graph shows two lines: a red line labeled "Transformed" and a blue line labeled "Feature-extended".

Evaluation:

- Training:** The Pseudo-Standard Spectra are used for Training, which leads to the development of Machine Learning Models.
- Testing:** The Machine Learning Models are used for Testing, which leads to the final Classification Results.

Development of a portable gas chromatograph–mass spectrometer embedded with a low-temperature adsorption thermal desorption module for enhanced detection of volatile organic compounds

The schematic diagram illustrates the components of the portable GC-MS system. It includes a Fan, Dissipator, TEC, and Adsorption tube. The Portable GC-MS unit is shown in two views: a top view and a side view. The side view shows the GC-MS unit with a sample inlet and a detector. The top view shows the GC-MS unit with a sample inlet and a detector. The side view shows the GC-MS unit with a sample inlet and a detector. The top view shows the GC-MS unit with a sample inlet and a detector. The side view shows the GC-MS unit with a sample inlet and a detector.

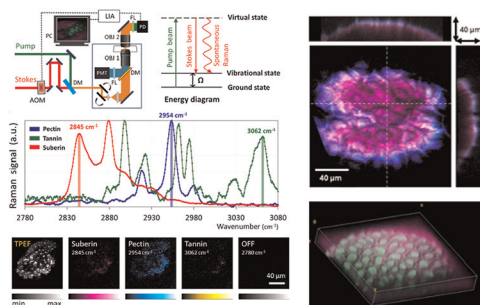
The graph shows the Total Ion Chromatogram (TIC) for TO-15 at two temperatures: 0°C (red line) and 35°C (blue line). The Y-axis represents TIC, ranging from 0 to 1.8 x 10⁵. The X-axis represents Time (min), ranging from 1.4 to 2.2. The 0°C curve shows a prominent peak at approximately 2.05 minutes, while the 35°C curve shows a much smaller peak at the same time. An arrow points from the schematic of the adsorption tube to the graph, indicating the sample being analyzed.

Label-free miRNA fluorescent biosensors based on duplex-specific nucleases and silver nanoclusters

ICT-based fluorescent nanoparticles for selective cyanide ion detection and quantification in apple seeds

The diagram illustrates the reversible reaction of DCVTT with NaCN. On the left, DCVTT is shown as a red liquid in a vial. Its chemical structure features a central fluorene core with two phenylthio groups and two 4-cyano-2-vinylphenyl groups. Green arrows labeled 'ICT-ON' indicate intramolecular charge transfer from the fluorene donor to the cyano-vinyl acceptor. In the center, an arrow labeled 'NaCN' points to the right. On the right, DCVTT-CN⁻ is shown as a colorless liquid in a vial. Its structure is the same as DCVTT but with the addition of a cyanide group (CN⁻) to the vinyl carbon, forming a cyano-styrene derivative. Purple arrows labeled 'ICT-OFF' indicate the suppression of intramolecular charge transfer due to the formation of the cyanide complex.

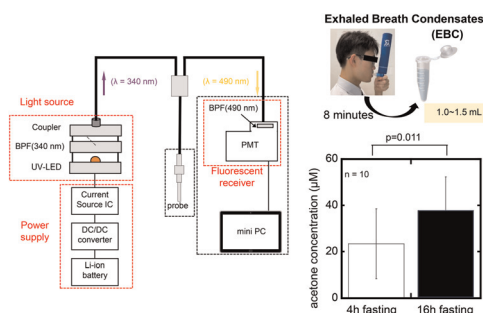
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Shedding new light on the hidden complexity of seeds: chemically selective imaging of seed coats with stimulated Raman scattering microscopy

Chun-Chin Wang, Steven Penfield and Julian Moger*

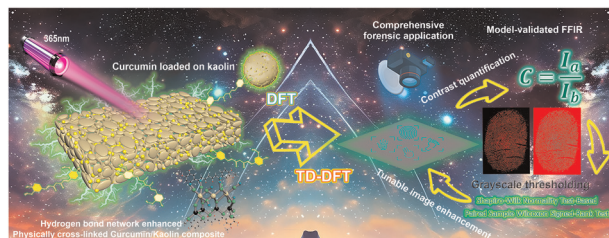
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A handheld biofluorometric system for acetone detection in exhaled breath condensates

Geng Zhang, Kenta Ichikawa, Kenta Iitani, Yasuhiko Iwasaki and Kohji Mitsubayashi*

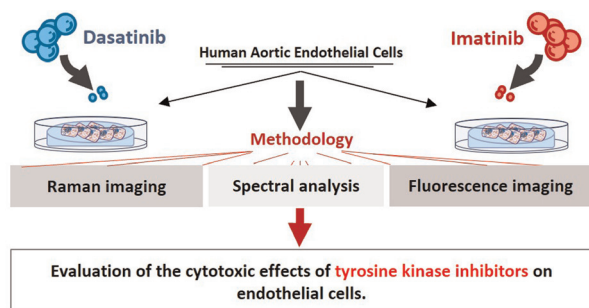
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Curcumin/kaolin composite for advanced latent fingerprint imaging with fluorescence quantification

Jiujiang Wang, Dawu Li,* Jianghua Zhang, Zijian Gao and Jinke Han

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Assessing endothelial cytotoxicity induced by tyrosine kinase inhibitors: insights from Raman and fluorescence imaging

Jagoda Orleanska, Weronika Krol and Katarzyna Majzner*

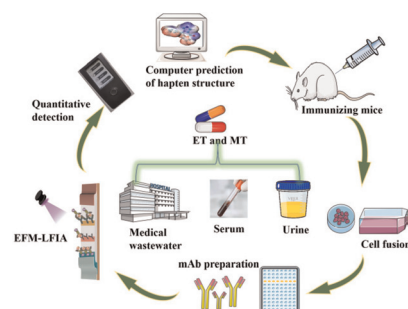


PAPERS

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Fluorescent microsphere-based strip for sensitive and quantitative detection of etomidate and metomidate

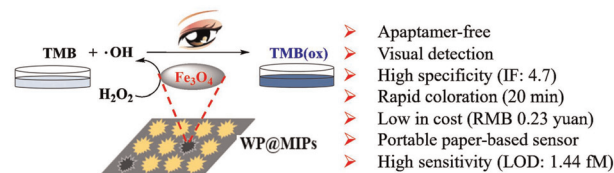
Qingqing Liu, Xinxin Xu, Liqiang Liu, Aihua Qu,*
Chuanlai Xu and Hua Kuang



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Self-service aptamer-free molecularly imprinted paper-based sensor for high-sensitivity visual detection of influenza H5N1

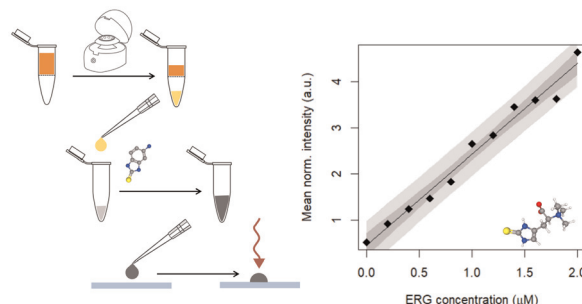
Hang Gong,* Luru Xu, Yong Li,* Tao Pang,
Chunyan Chen, Feng Chen and Changqun Cai*



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Detection and quantification of ergothioneine in human serum using surface enhanced Raman scattering (SERS)

Stefano Fornasaro,* Nigel Gotts, Gioia Venturotti,
Marina Wright Muelas, Ivayla Roberts, Valter Sergo,
Royston Goodacre and Alois Bonifacio



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Phage-ELISA for ultrasensitive detection of *Salmonella enteritidis*

Mangmang Shen, Chang Ni, Jiasheng Yuan and
Xin Zhou*

