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主办

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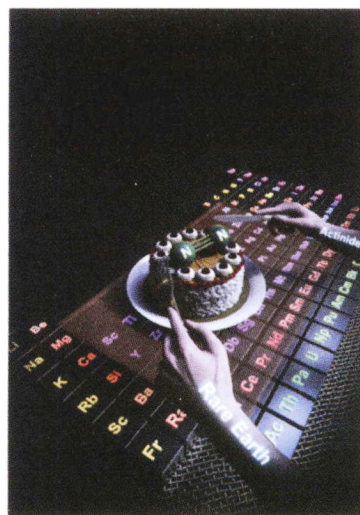
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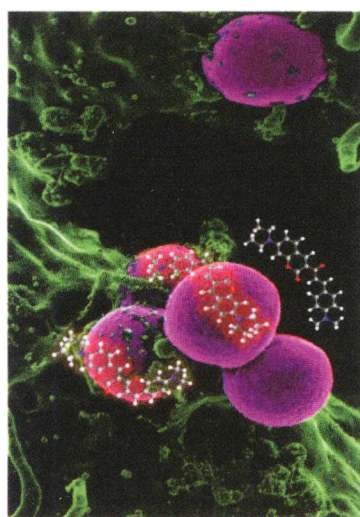
- 更正启事 [化学学报, 2022, 80(3), 265-271] 化学学报, 2022, 80(9), 1364-1364

* 通信联系人.

On the cover: The synthesis of rare earth and actinides metal-dinitrogen complexes over the past five years, as well as the progress on the generation of nitrogen-containing organic compounds from dinitrogen gas promoted by rare earth and actinide complexes were summarized in this review. [Wei, Junnian *et al.* on page 1299-1308.]



On the back cover: In this paper, a polar fluorescence probe COM-PO was designed, and its spectrum and fluorescence imaging experiments confirmed that it is promising for clinical diagnosis of liver diseases. [Lin, Weiying *et al.* on page 1217-1222.]

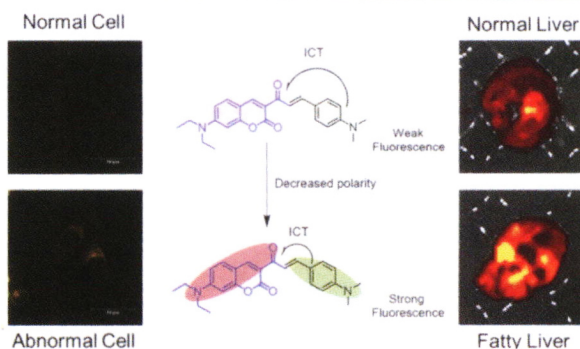


Article

Development of a Novel Fluorescent Probe Based on Coumarin Fluorophore for Polarity Detection and Its Imaging Applications

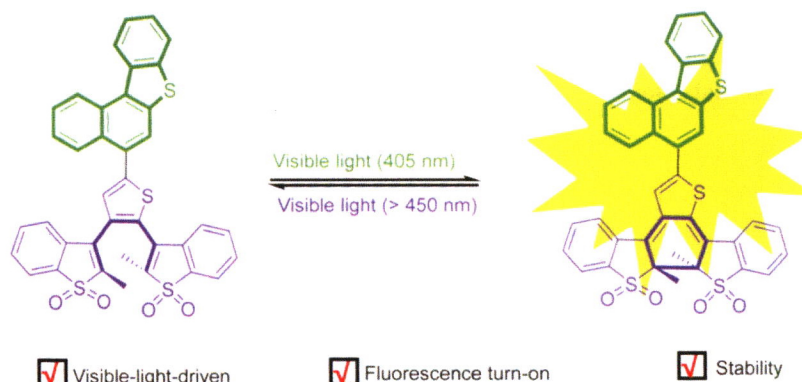
Song, Sirui; Tang, Yonghe; Sun, Lianguang; Guo, Rui; Jiang, Guanfan; Lin, Weiying*

Acta Chim. Sinica **2022**, 80(9), 1217-1222



A coumarin-based fluorophore fluorescent probe is designed to detect early liver disease associated with polarity.

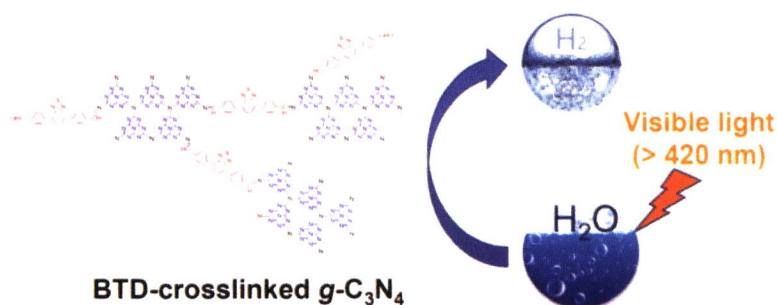
Synthesis and Properties of Visible-light-driven Fluorescence Turn-on Diarylethenes Based on Benzo[*b*]-naphtho[1,2-*d*]thiophene



Zhao, Jie; Wang, Zhiwen; Li, Huaqing; Ai, Qi*; Cai, Peiqing; Si, Junjie; Yao, Xin; Hu, Xiaoguang*; Liu, Zugang*

Acta Chim. Sinica **2022**, *80*(9), 1223-1230

Conjugated Crosslinking Modification of Graphitic Carbon Nitrides and Its Effect on Visible Light-Driven Photocatalytic Hydrogen Production

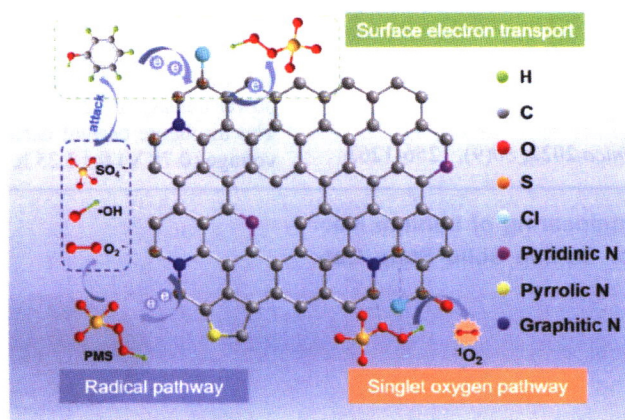


Xie, Zhongshu; Xue, Zhongxin; Xu, Ziwen; Li, Qian; Wang, Hongyu*; Li, Wei-Shi*

Acta Chim. Sinica **2022**, *80*(9), 1231-1237

Conjugated crosslinking modification of graphitic carbon nitride with benzothiadiazole improves visible light-driven photocatalytic hydrogen production from water.

Study on Performance and Mechanism of Phenol Degradation through Peroxymonosulfate Activation by Nitrogen/Chlorine Co-doped Porous Carbon Materials



Li, Xiaojuan; Ye, Ziyu; Xie, Shuhan; Wang, Yongjing; Wang, Yonghao; Lv, Yuancai; Lin, Chunxiang*

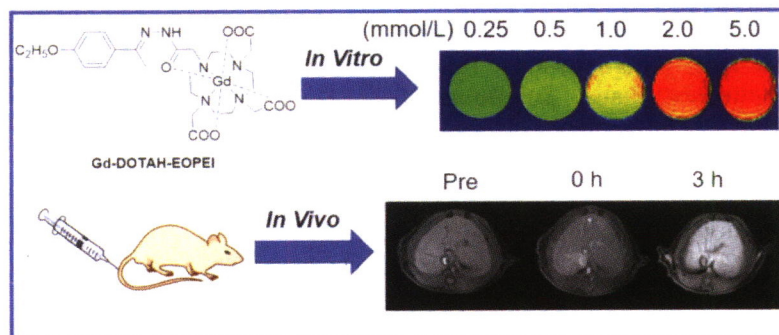
Acta Chim. Sinica **2022**, *80*(9), 1238-1249

Nitrogen and chlorine co-doped ZIF-8 derived porous carbon materials were synthesized. NCIC900 exhibited excellent peroxymonosulfate activation performance with 97.7% of phenol and 72.4% of total organic carbon removal in 30 min. Radical pathway, singlet oxygen pathway and surface electron transfer coexist in NCIC900/PMS system, among which surface-bound $\text{SO}_4^{\cdot-}$ and $^1\text{O}_2$ played a leading role in phenol degradation. Graphite N and C—Cl were identified as the key active sites for generating of surface-bound $\text{SO}_4^{\cdot-}$ and $^1\text{O}_2$.

Design, Preparation and Evaluation of a Class of Liver-specific Gadolinium-Based Macrocyclic Magnetic Resonance Contrast Agents

Sun, Hongshun*; Zhou, Jin; Liu, Cheng, Chen, Xu; Du, Yijing; Li, Yulong; Jiang, Hong; Wang, Jianqiang; Song, Zhe; Guo, Cheng*

Acta Chim. Sinica 2022, 80(9), 1250-1255

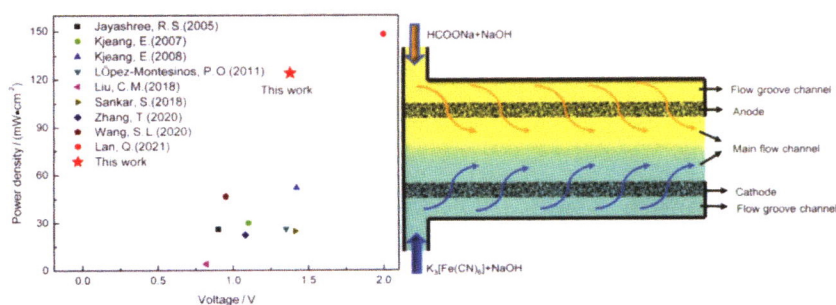


A class of eight magnetic resonance imaging (MRI) contrast agents (CAs), which contained lipophilic group such as ethoxy aryl or methoxyphenyl and chelating group of DOTAH (DOTA-hydrazide) (DOTA: 1,4,7,10-tetraazacyclododecan-1,4,7,10-tetraacetic acid) for Gd^{3+} ion, were designed and prepared by one step in the yield of 60%~76%. Among them, three complexes were filtrated as liver-specific MRI CAs. Combined with relaxivities, *in vitro* and *in vivo* MR imaging data, the lead compound was screened for Gd-DOTAH-EOPEI (EOPEI: 1-(4-ethoxyphenyl)ethanimine).

Performance Research of the Direct Sodium Formate/Potassium Ferricyanide Microfluidic Fuel Cell

Liu, Chunmei*; Gao, Yanjun; Chen, Pengliang

Acta Chim. Sinica 2022, 80(9), 1256-1263

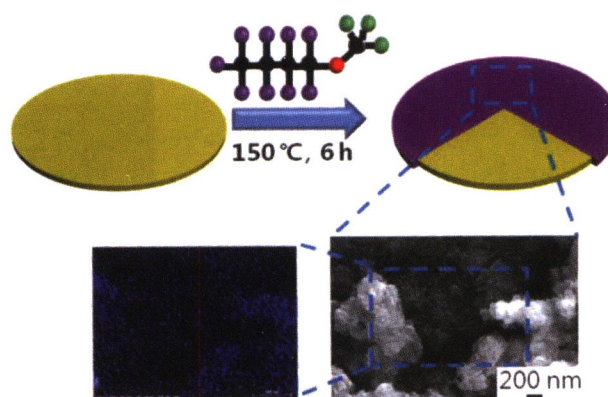


To achieve the all-alkaline microfluidic fuel cell (MFC), the direct sodium formate/potassium ferricyanide MFC was constructed to be applied in the oxygen-free or oxygen-insufficient alkaline environment. This MFC owned the advantages such as low cost and simple construction without the need of the expensive proton exchange membrane and cathode catalyst loading. The performance of the MFC was optimal with the peak power density of $123.93 \text{ mW}\cdot\text{cm}^{-2}$, and the limiting current density of $220.93 \text{ mA}\cdot\text{cm}^{-2}$. The discharge current density of the MFC decreased by about 20% under the constant voltage (0.78 V) for 2.25 h, suggesting it could stably discharge under this voltage.

Interfacial Engineering of Lithium Metal Anode for Sulfide Solid State Batteries

Liang, Shishuo; Kang, Shusen*; Yang, Dong; Hu, Jianhua

Acta Chim. Sinica 2022, 80(9), 1264-1268

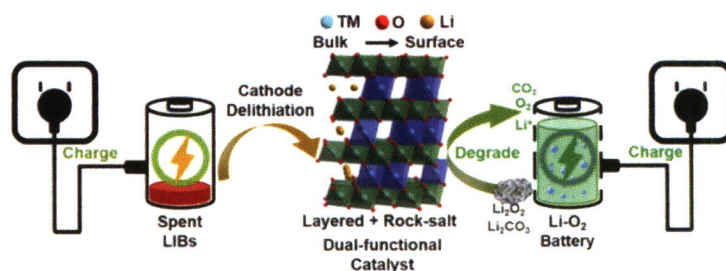


The uniform LiF-rich artificial solid electrolyte interface (ASEI) layer fabricated using $CF_3(CF_2)_3OCH_3$ by heating at a temperature of $150 \text{ }^\circ\text{C}$ for 6 h at the interface between Li and sulfide electrolyte could prevent Li dendrite growth.

Electrochemical Behaviors of Li_xMO ($x = 0.79, 0.30, 0.08$; $\text{M} = \text{Ni}/\text{Co}/\text{Mn}$) Recycled from Spent Li-ion Batteries as Cathodic Catalyst for Lithium-Oxygen Battery

Zhang, Shuang; Yang, Chengfei; Yang, Yubo; Feng, Ningning*; Yang, Gang*

Acta Chim. Sinica **2022**, *80*(9), 1269-1276

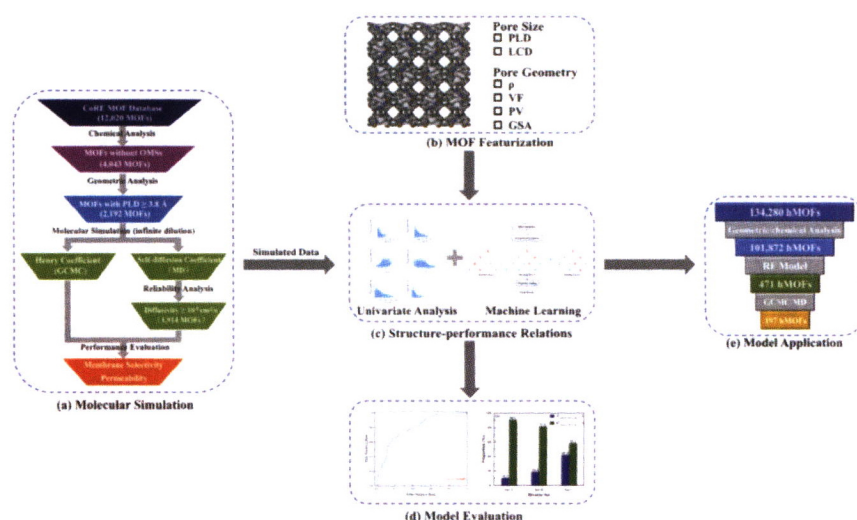


Multiphase Li_xMO obtained from spent lithium-ion battery by electrochemical method is applied to improve the oxygen reduction reaction (ORR)/oxygen evolution reaction (OER) performance of lithium-oxygen battery.

Large-Scale Computational Screening of Metal-Organic Framework Membranes for Ethane/Ethylene Separation

Cheng, Min; Wang, Shihui; Luo, Lei; Zhou, Li; Bi, Kexin; Dai, Yiyang; Ji, Xu*

Acta Chim. Sinica **2022**, *80*(9), 1277-1288

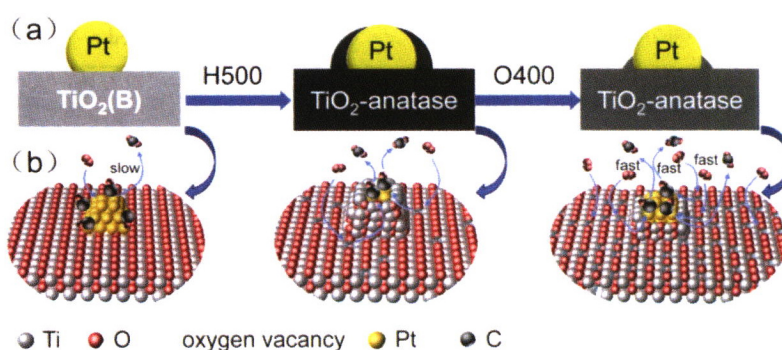


A large-scale computational screening of 12,020 real metal-organic framework (MOF) membranes was carried out to identify the optimal ethane-selective MOF membranes for ethane/ethylene separation. Based on the simulated data, the relationships between geometric characteristics and corresponding membrane separation performances were discussed. Further, a random forest classifier was developed for rapid prescreening of high-performing MOFs from a large MOF database, whose transferability was subsequently investigated.

The SMSI of Pt-TiO₂ During the Crystalline Phase Transformation and Its Effect on CO Oxidation Performance

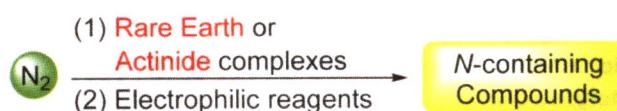
Jia, Yahui; Li, Chunsheng; Xu, Zhongzhen; Liu, Wei*; Gao, Daowei; Chen, Guozhu*

Acta Chim. Sinica **2022**, *80*(9), 1289-1298



In Pt-TiO₂ system, the TiO₂ crystal plane effect and Pt nanoparticle size effect on the SMSI (strong metal-support interaction) have been demonstrated, while it is still unclear whether the TiO₂ crystalline phase influences the creation of SMSI or not. In this study, we choose brookite TiO₂(B) as support to prepare Pt-TiO₂(B) catalyst by means of traditional impregnation method, and found that the crystalline phase transformation plays a great role in the creation of SMSI. In addition, the TiO_{2-x} coating on Pt surface and the oxygen vacancies from support are simultaneously responsible for the catalytic activity toward CO oxidation.

Dinitrogen Activation and Transformation Promoted by Rare Earth and Actinide Complexes

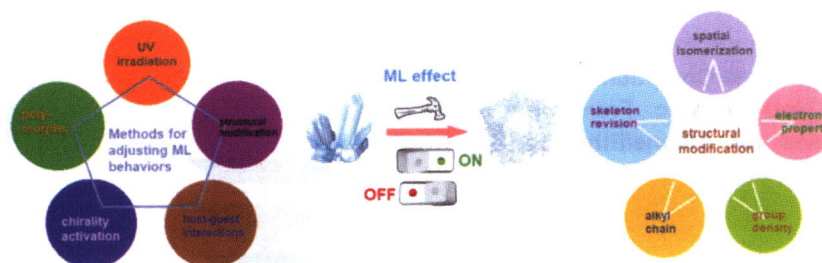


Chen, Xiao; Xu, Hanhua; Shi, Xianghui; Wei, Junnian*; Xi, Zhenfeng

Acta Chim. Sinica **2022**, *80*(9), 1299-1308

The synthesis of rare earth and actinide metal-dinitrogen complexes over the past five years, as well as the progress on the generation of nitrogen-containing organic compounds from dinitrogen gas promoted by rare earth and actinide complexes were summarized in this review.

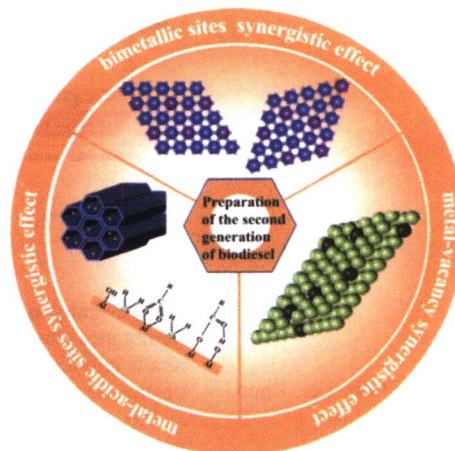
Methods for Adjusting Mechanoluminescence Behaviors on Crystals of Purely Organic Small Molecules



Jia, Yanrong; Gao, Guanlei; Xia, Min*

Acta Chim. Sinica **2022**, *80*(9), 1309-1321

Structural Design and Research Progress of Heterogeneous Catalysts for the Preparation of Second Generation Biodiesel

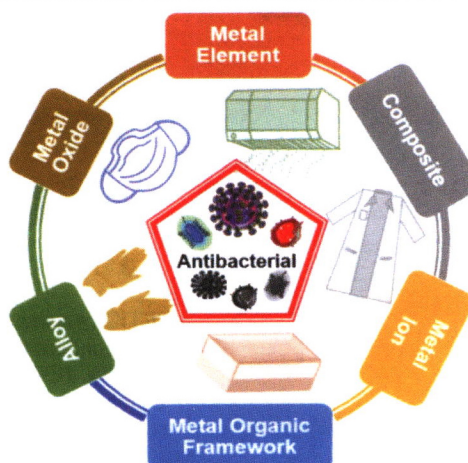


Tian, Zhaowei; Da, Weimin; Wang, Lei; Yang, Yusen*; Wei, Min

Acta Chim. Sinica **2022**, *80*(9), 1322-1337

The structural design of heterogeneous catalysts for the synthesis of the second-generation biodiesel is summarized from three aspects: bimetallic sites, metal-acidic sites, and metal-vacancy synergistic effect. And future opportunities and challenges in this field are prospected.

Inorganic Coatings and Films for Antibacterial and Antivirus Functionality

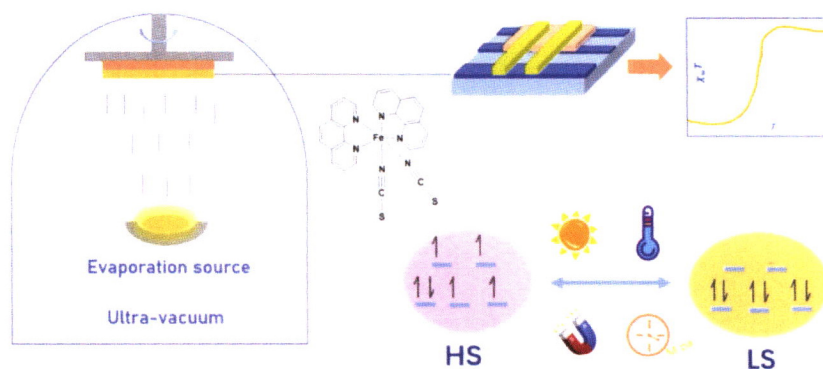


Wang, Jie; Ye, Yuqing; Li, Yuan; Ma, Xiaojie*; Wang, Bo*

Acta Chim. Sinica **2022**, *80*(9), 1338-1350

Antibacterial and antiviral functional coatings and fabrics were prepared using inorganic nanomaterials in different forms.

Thin Films and Devices of Evaporable Spin Crossover Complexes



Zhang, Qi; Jiang, Mengyun; Liu, Tianyi;
Zeng, Yixun; Shi, Shengwei*

Acta Chim. Sinica **2022**, *80*(9), 1351-1363

Evaporable spin crossover complexes are very promising based on which various devices can be easily fabricated, and they thus endow the devices with fascinating functions from the spin transition character induced by different stimulations such as light, temperature, pressure and magnetism, *etc.*

Corrections

Correction to [*Acta Chim. Sinica* **2022**, *80*(3), 265-271]..... *Acta Chim. Sinica* **2022**, *80*(9), 1364-1364

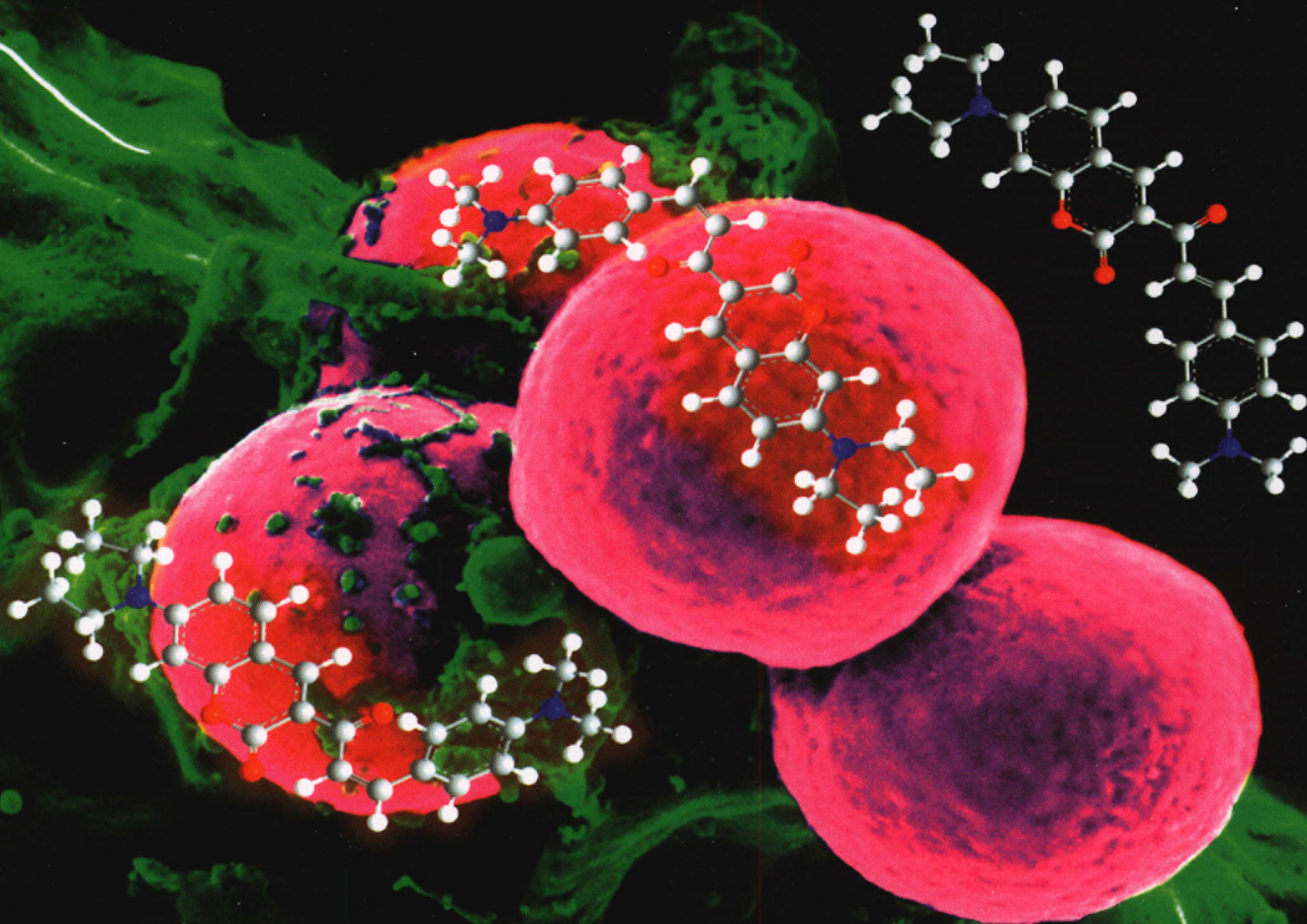
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