

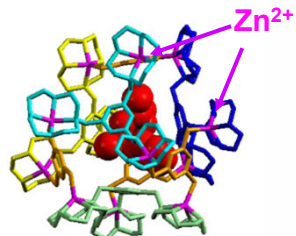
生命創薬科学科

青木伸研究室 (生物有機化学)

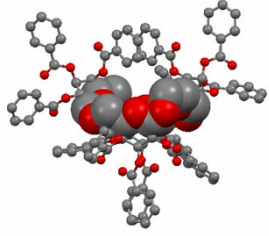
<https://www.rs.noda.tus.ac.jp/aokilab/>

オリジナルな分子・自己集積体の設計・合成に基づく
生体现象・生体反応の理解と制御
～機能性分子の創製・触媒反応開発・創薬～

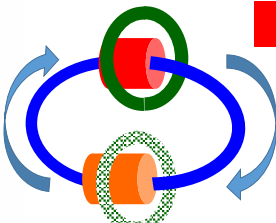
オリジナルな錯体合成と発光機能制御



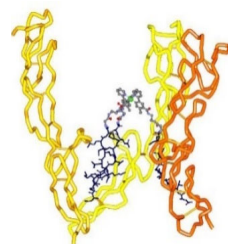
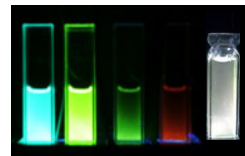
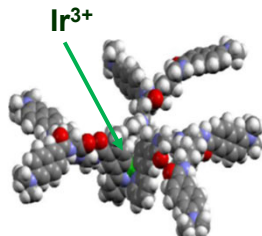
超分子カプセル



糖鎖合成

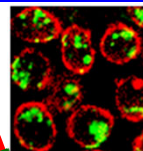


超分子機械

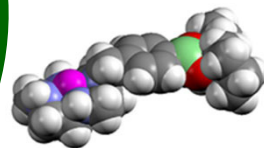


タンパク質間相互作用制御

がんイメージングと抗がん剤開発



^{11}B NMR/MRI



がん放射線治療用薬剤 (中性子捕捉療法 (NCT)) と薬剤イメージング

Chemistry (化学)

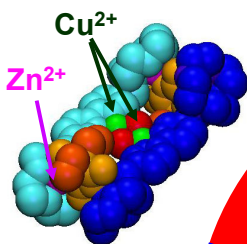
生命創薬科学

Biology (生物学)

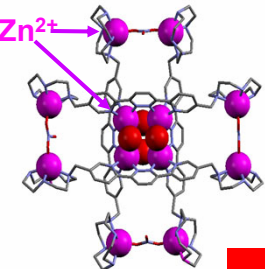
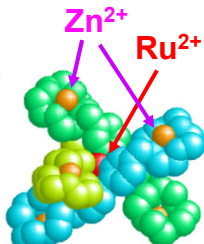
Physics (物理学)

Engineering (工学)

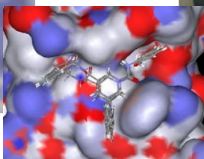
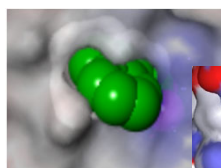
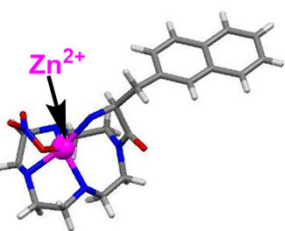
超分子触媒



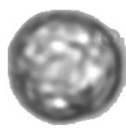
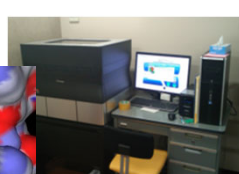
生体内分子の発光プローブ



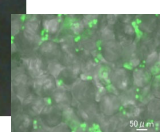
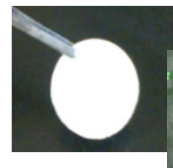
In Cell不斉触媒



In silico-3D printer創薬 (抗菌・抗ウイルス・抗がん剤)



CTC検出PCソフトウェア



ガラスビーズフィルター (GBF)

がん転移・再発に関わる血中循環がん細胞 (CTC) の検出・捕捉・培養・回収

セレンディピティ (非常識の発見・小さな発見を大きな研究に)
Negative thinking → Positive thinking
基礎科学重視・Only One in the World

国際交流・国際学会への参加



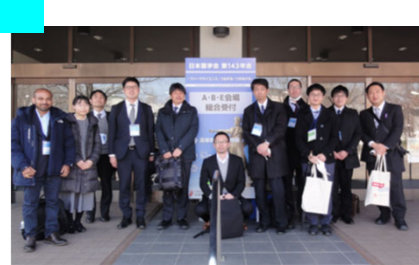
2015 (平成27) 年の環太平洋国際化学会 (PACIFICHEM2015) (米国・ハワイ)



The International Postgraduate Conference on Pharmaceutical Sciences (IPoPS) (大学院生が主催する薬学国際シンポジウム) (2018 (平成30) 年、マレーシア・クアラルンプール)



2019 (平成31) 年の第18回アジア化学会 (18ACC) (台湾・台北)

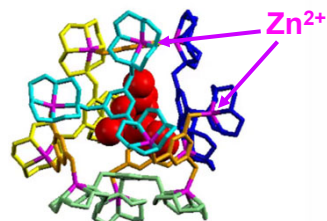


2023 (令和5) 年の日本薬学会第143回年会 (札幌・北大)

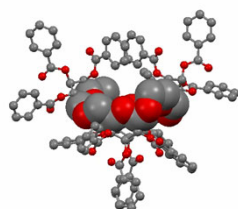
Department of Medicinal & Life Sciences Bioorganic & Bioinorganic Chemistry Laboratory (Prof. Shin Aoki)

<https://www.rs.noda.tus.ac.jp/aokilab//>

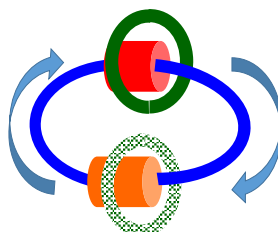
Design & Synthesis of New Artificial Compounds & Supramolecular Complexes for Biological & Medicinal Chemistry & Material Sciences (Probes, Catalysts & Drugs)



Supramolecular capsules

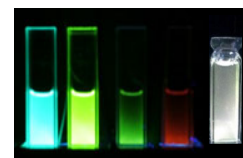
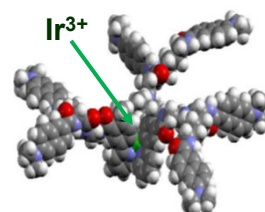


Oligosaccharide synthesis

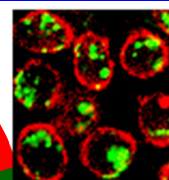


Supramolecular machines

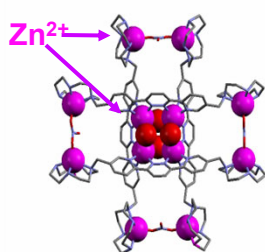
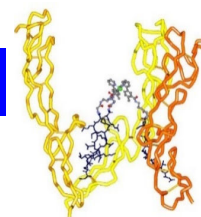
Design & synthesis of original metal complexes



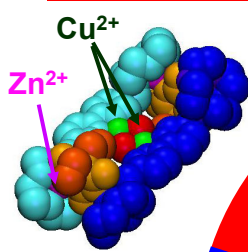
Theranostics (diagnosis & thrapeutics) of cancer



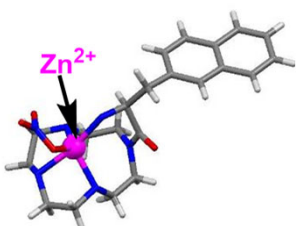
Controlling protein-protein interaction



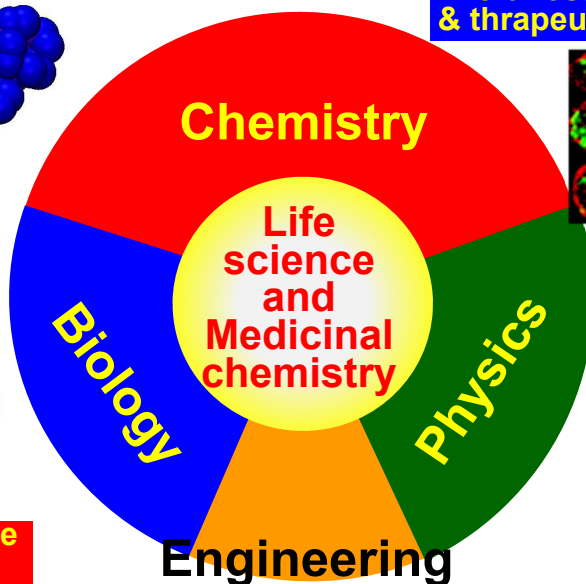
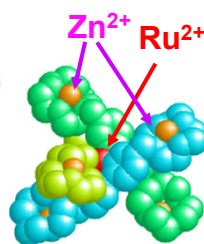
Supramolecular catalysts



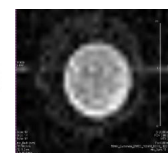
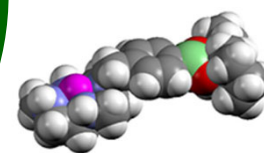
Luminescence probes of intracellular molecules



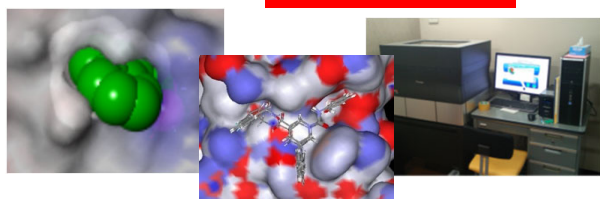
In Cell asymmetric synthesis



^{11}B NMR/MRI



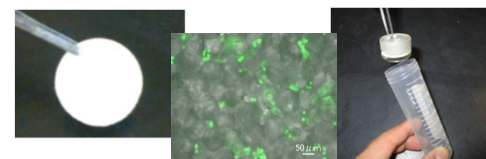
Development of drugs & probes for neutron capture therapy (NCT)



In silico-3D printer-based drug design (Antibiotics, antiviral & anticancer agents)



PC software for CTC detection



Glass-bead filters (GBF) for CTC separation & regrowth

Detection, separation, regrowth, and recollection of circulating tumor cells (CTC) for cancer theranostics

Discovery of New Phenomena (Serendipity is Important)

Only One in the World Based on Basic Science

Postgraduate Students & PD from Foreign Countries are Welcome

International relationship, presentations in international symposiums & publications in international journals



PACIFICHEM2015 at Hawaii, US, 2015



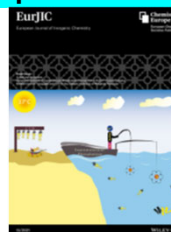
The International Postgraduate Conference on Pharmaceutical Sciences (iPoPS) (International symposium with Malaysia organized by postgraduate students) (at Kuala Lumpur, Malaysia, 2018)



Chem. Pharm. Bull. 2016



Research Outreach 2020



Eur. J. Inorg. Chem. 2021



J. Med. Chem. 2021



Biochemistry 2022