

The Department of Chemistry and Biochemistry

Seminar Series

Presents a Seminar Titled:

“Investigating the Potential of Inorganic Complexes to be Developed as Pharmaceutical Agents: An Undergraduate Research Project”



Presented By

Dr. Floyd Beckford

*Van W. Daniel III Professor of Chemistry
The University of Virginia's College at Wise*

With a number of platinum compounds now in clinical use, coordination complexes are still actively being studied for use as chemotherapeutics. The investigation of ruthenium (Ru) complexes as potential pharmaceutical agents is continuing to attract increasing attention. This is due in part to inherent chemical properties of such compounds. As examples, two Ru(III) complexes, namely NAMI-A ($[\text{ImH}][(\text{Im})\text{RuCl}_4(\text{dms})]$, Im = imidazole) and KP1019 ($[\text{IndH}][(\text{Ind})_2\text{RuCl}_4]$, Ind = indazole) have recently completed Phase I clinical trials as anti-metastatic and anticancer drugs, respectively. Another class of Ru complexes that is generating significant interest is the organometallic complexes $[(\text{arene})\text{Ru}(\text{LL})\text{Cl}]^+$. Though these complexes have yet to be clinically assessed, they show wide ranging medicinal properties. This is due to their structure which provides an ideal template for modification in order to generate medicinally-active compounds. In particular variation of the arene and/or the LL ancillary ligand provides potentially extensive variations in both geometry and electronic properties. In our research lab we synthesize complexes of this type where LL = a thiosemicarbazone or a curcuminoid. Both thiosemicarbazones and curcuminoids are well-known in medicinal chemistry as bioactive compounds showing a broad spectrum of chemotherapeutic properties. The arenes we use are *p*-cymene and benzene but we have also been investigating the use of 1,4,7-trithiacyclononane (9aneS3) as an alternative face-cap to the arenes. Our compounds are evaluated for their anticancer and antibacterial properties. In addition their biochemical and biophysical characteristics are investigated through their reactions with nucleic acids and model proteins

Friday, October 4, 2013 at 3:00 p.m. in OCNPS 100