Development of Ni-dithiolene Photothermal Agents

Nanomedicine is the application of nanoscale materials for medicinal intentions in a living organism. Some of the aims of this field is improving drug discovery and developing diagnosis and treatment techniques for diseases such as cancer. Photothermal Therapy is an example of these developments, it is a medical treatment that uses radiation transformed into heat to kill malignant cells. This heat is produced by a substance called a photothermal agent when it is exposed under a laser of a particular wavelength in the near infrared region. Nickel-bis(dithiolene) complexes have been demonstrated to show these photothermal properties. Our focus is to synthesize the complex $(NBu_4)_2[Ni(dmit)_2]$ and utilize it as a base to develop a new photothermal agent through chemical substitution for the introduction of a bioimaging component.