1. Record Nr. UNINA9910254023703321

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Titolo	Anti-Cancer N-Heterocyclic Carbene Complexes of Gold(III), Gold(I) and Platinum(II) : Thiol “Switch-on” Fluorescent Probes, Thioredoxin Reductase Inhibitors and Endoplasmic Reticulum Targeting Agents / / by Taotao Zou
Pubbl/distr/stampa	Singapore : , : Springer Singapore : , : Imprint : Springer, , 2016
ISBN	981-10-0657-1
Edizione	[1st ed. 2016.]
Descrizione fisica	1 online resource (175 p.)
Collana	Springer Theses, Recognizing Outstanding Ph.D. Research, , 2190-5053
Disciplina	540
Soggetti	Chemistry, Inorganic Pharmaceutical chemistry Molecular biology Cancer - Research Inorganic Chemistry Medicinal Chemistry Molecular Medicine Cancer Research
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Introduction -- Experimental Section -- Gold(III) Complexes Containing N-Heterocyclic Carbene Ligand Serve as Dual Fluorescent Thiol “Switch-on” Probe and Anti-Cancer Agent -- A Binuclear Gold(I) Complex with Mixed Bridging Diphosphine and Bis(N-Heterocyclic Carbene) Ligands Shows Favorable Thiol Reactivity and Effectively Inhibits Tumor Growth and Angiogenesis in Vivo -- Luminescent Organoplatinum(II) Complexes Containing Bis(N-Heterocyclic Carbene) Ligands Selectively Target Endoplasmic Reticulum and Induce Potent Phototoxicity -- Summary and Evaluation.
Sommario/riassunto	This thesis focuses on the development of gold- and non-classical platinum-based anti-cancer agents that display distinctively different anti-cancer mechanisms compared to the commonly used cisplatin. These metal complexes contain N-heterocyclic carbene (NHC) ligands

which are able to form strong M-C(NHC) bonds, conferring high stability and favorable lipophilicity, reactivity and binding specificity of metal complexes on biomolecules. The author demonstrates significant advances made in anti-cancer gold(III), gold(I) and platinum(II) complexes. Detailed chemical synthesis, in vitro and/or in vivo anti-cancer activities are clearly presented including: (i) a class of Au(III) complexes containing a highly fluorescent N^N^N ligand and NHC ligand that simultaneously act as fluorescent thiol “switch-on” probes and anti-cancer agents; (ii) a dinuclear gold(I) complex with a mixed diphosphine and bis(NHC) ligand displaying favorable stability and showing significant inhibition of tumor growth in two independent mice models with no observable side effects; and (iii) a panel of stable luminescent cyclometalated platinum(II) complexes exhibiting high specificity to localize to the endoplasmic reticulum (ER) domain, inducing ER stress and cell apoptosis. These works highlight the clinical potential that gold and platinum complexes offer for cancer treatment.