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Chlorin and Bacteriochlorin-based Aminophenyl DTPA and N2S2 Conjugates for MR Contrast Media and Radiopharmaceuticals

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Keywords: Imaging, Age-Related Macular Degeneration, Porphyrin, chlorin, bacteriochlorin, gadolinium.

Summary: By and large, magnetic resonance (MR) contrast media have neither been disease specific nor organ-specific. Injected intravenously, most are rapidly excreted by the kidneys by glomerular filtration. Although several liver-specific contrast media have been created, other organs have not been successfully targeted, and no tumor avid MR contrast agents are available to date.

Because detection of unknown primary tumor and metastatic disease is the "holy grail" of diagnostic oncology imaging, a tumor-avid MR contrast medium would have huge implications for prognosis, therapy selection, and patient outcomes.

Technology: Researchers at Roswell Park Cancer Institute (RPCI) have developed a method of using compounds of this invention for diagnostic imaging of hyperproliferative tissues such as tumors and new blood vessel growth as is associated with the wet form of age related macular degeneration.

Invention includes compositions that are chemical combinations of porphyrins and chlorins as well as related tetra-pyrrolic compounds with radioactive elements such as Technetium.sup.99, Gadolinium, Indium.sup.111, and radioactive iodine. When the element can form cations, the compound is usually a chelate with the porphyrin or chlorin structure. When the element forms anions, the compound is usually a direct chemical combination of the radioactive element into the porphyrin or chlorin structure.

Collaborative Research Opportunity:
Roswell Park Cancer Institute is seeking parties interested in collaborative research to further evaluate or commercialize this research in terms of potential customization for different tumor and tissue types as a form of both personalized imaging and personalized medicine.

Potential Commercial Applications:
- Cancer imaging
- Photodynamic therapy
- Treatment for Age Related Macular Degeneration

Competitive Advantages:
- Potential single agent for both MRI & Fluorescence
- No difference in pharmacokinetic profile
- Increased depth of penetration due to longer wavelength and thus less scattering

Development Status: Patent Status: US 6,534,040; Filed in Australia, Belgium, Canada, Europe, Japan