

# Ghrelin Analogues as Molecular Imaging Probes

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## Technology description

### Background:

Human Growth Hormone Secretagogue Receptor (GHSR), a member of the G Protein-Coupled Receptors (GPCR) family, is mainly expressed in the hypothalamus, pituitary cells and a number of peripheral tissues. Expression of the GHSR has been reported in various types of tumors, including breast carcinomas, prostate cancer cell lines, ovarian tumors, testicular tumors, pancreatic endocrine tumors and intestinal carcinoids. The presence of high affinity and specific binding sites in the neoplastic cells but the absence in the corresponding normal tissues suggests that GHSR may be a suitable target for tumor imaging.

### Description of the Invention:

Ghrelin is the natural ligand for the GHSR. Ghrelin binds to the GHSR with high affinity and specificity, resulting in a ghrelin-GHSR complex that is internalized. This binding and internalization of the ghrelin-GHSR complex is exploited through the design of a class of ghrelin-based imaging agents targeting GHSR. Through competitive binding assays it has been demonstrated that these imaging probes have strong affinity to the desired receptor target, GHSR. These probes are suitable for the non-invasive imaging of tumours expressing GHSR and possibly other disease states where GHSR over-expression is found. Such an entity could also be used for therapeutic intervention or as a chemical standard for biological evaluations.

## Application area

- Cancer
- Imaging
- Probes
- Ghrelin
- Therapeutic
- Diagnostic

## Advantages

- The first description of a ghrelin-based probe/therapeutic
- Various modalities could be used to facilitate molecular imaging
- The labeled ghrelin analogues successfully exhibited concentration-dependent cell-binding to cancer cells confirmation their utility for imaging

## Institution

[WORLDdiscoveries](#)

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