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Cyclodepsipeptides compounds presenting anti-cancer and anti-infective activity, and their synthesis.

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Inventors

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Invention Description

Kitasatospora sp. produces a variety of metabolites with anti-cancer activity, such as the cyclodepsipeptide respirantin.

Researchers at Arizona State have isolated other related molecules with anti-cancer and anti-microbial activities: kitastatin 1 and a valeryl modification of respirantin.

These three compounds exhibit potent anti- cancer cell growth properties (GI_{50} ~ 0.0006 µg/mL). These compounds also have potential anti-infective activities.

Researchers at ASU have also realized the total synthesis of the respirantin compound. This approach should offer ready access to the scale-up synthesis of respirantin, kitastatin and a variety of their structural analogs.

Potential Applications

- **Anti-cancer therapeutic agents**
- **Anti-microbial and anti-fungal agents**

Benefits and Advantages

- **Diversity** – Discovery of a whole class of structurally unique and powerful cancer cell growth inhibitors, which properties have never been reported. Compounds also present potential anti-microbial/anti-fungal activities.
- **Synthesis** – These compounds are synthetically available.
- **Efficacy** – The new compounds display an impressive spectrum of activity against a panel of human cancer cell lines. Kitastatin 1 showed a special selectivity against the pancreas BXPC-3 human cancer cell line.

Intellectual Property Status:

Patent Pending

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