

# BioCentury

REPRINT FROM NOVEMBER 14, 2016

## EMERGING COMPANY PROFILE

# GOLDEN OPPORTUNITY

BY ERIN MCCALLISTER, SENIOR EDITOR

By applying medicinal chemistry to an old drug with strong but narrow-spectrum antibacterial properties, [Auspherix Ltd.](#) has discovered a new class of gold salt derivatives called organogolds that could preferentially target desired tissues to fight drug-resistant infections.

The biotech expects to enter the clinic in 2019 with one or more candidates that target and concentrate in areas in and around the bladder to treat chronic urinary tract infections (cUTI).

Auspherix has a series of three structurally different organogold small molecules in lead optimization.

The mechanism by which the compounds disrupt bacterial growth is unknown, but the company's unpublished data suggest activity in multidrug resistant infections.

"We do have data that demonstrate the antibacterial activity is distinct from existing classes of antibiotics. Furthermore, Auspherix compounds retain activity against multidrug resistant bacterial isolates, which suggests that the MOA is either novel or likely due to activity against multiple molecular targets," CSO Neil Miller told BioCentury.

Scientific co-founders Ian Charles and Dagmar Alber at the [University of Technology Sydney's](#) *ithree* Institute were seeking novel antimicrobial compounds that could treat Gram-positive and -negative infections. They began by screening a library of 640 molecules for activity against *Staphylococcus aureus*.

The screen showed that the marketed arthritis drug [Ridaura](#) auranofin had an IC<sub>50</sub> of <2.5 µg/mL, was active against planktonic growth and biofilms, and also killed small colony variants of bacteria at the same rate as wild-type bacterial strains.

Ridaura is an oral formulation of gold salt approved by FDA in 1985 to treat rheumatoid arthritis, so the compound also had a well-established safety profile. However, it was not active against Gram-negative bacteria.

Charles and Alber found that by modifying the molecular size and polarity of the phosphine ligand of the gold atom,

### AUSPHERIX LTD.

Stevenage, U.K.

**Technology:** Organogold-based small molecules

**Disease focus:** Infectious

**Clinical status:** Discovery

**Founded:** 2013 by Ian Charles and Dagmar Alber

**University collaborators:** Not disclosed

**Corporate partners:** None

**Number of employees:** 14

**Funds raised:** £7 million (\$8.6 million)

**Investors:** Brandon Capital, Imperial Innovations

**CSO:** Neil Miller

**Patents:** None issued

they could create a new chemical entity that was effective against Gram-negative and -positive bacteria.

Charles is chair of Auspherix's SAB, visiting professor at the University of Technology and former head of *ithree*. Alber was VP of biology at Auspherix and a research fellow at the university. Auspherix has exclusive, worldwide rights to the technology and organogold molecules developed at the university.

"That was a step change where they were able to build Gram-negative activity into a proprietary molecule," Miller said.

Auspherix has subsequently designed "differential distribution" properties into the molecules to allow them to target specific organs or regions of infection, according to Miller.

Details on the targeting technology aren't disclosed.

Unpublished data from early PK and distribution studies have shown that the company's candidates preferentially accumulate in and around bladder tissue.

Miller noted there are a "huge number" of patients who develop cUTIs, which require hospitalization, may be fatal and are often drug resistant.

“If you look across the pipeline, the real need is for a new class of antibiotics,” he said. “This is not going to be something that a new class solves, but this is where we think we can offer something compelling and different.”

According to BioCentury’s BCIQ database, at least eight programs are in the clinic for cUTI. However, the majority are second- or third-generation compounds that disrupt bacteria via traditional mechanisms like beta lactamase or [DNA gyrase](#) inhibition.

Auspherix plans to publish data on its compounds next year.

The company also plans to seek a series B round next year; it has not yet determined the round’s size. [bc](#)

---

## COMPANIES AND INSTITUTIONS MENTIONED

Auspherix Ltd., Stevenage, U.K.

U.S. Food and Drug Administration (FDA), Silver Spring, Md.

University of Technology Sydney, Ultimo, Australia

## BIOCENTURY INC.

---

### NEWSROOM

pressreleases@biocentury.com

### SAN CARLOS, CA

+1 650-595-5333; Fax: +1 650-595-5589

### CHICAGO

+1 312-755-0798; Fax: +1 650-595-5589

### WASHINGTON, DC

+1 202-462-9582; Fax: +1 202-667-2922

### UNITED KINGDOM

+44 (0)1865-512184; Fax: +1 650-595-5589

All contents Copyright © 2016 BioCentury Inc. ALL RIGHTS RESERVED. All use of BioCentury and its contents by current subscribers is governed by the BioCentury User Agreement and by all others is governed by the BioCentury Terms of Use, unless a written agreement to the contrary has been executed by BioCentury Inc. No part of BioCentury or its contents may be photocopied, reproduced or retransmitted in any form without the written consent of BioCentury Inc., which may be requested from Reprints/Permissions at [www.biocentury.com](http://www.biocentury.com).

**Trademarks:** BioCentury®; BCIQ™; The BioCentury 100™; Because Real Intelligence is Hard to Find™; and The Clear Route to ROI™ are trademarks of BioCentury Inc.

**Use of Images:** Certain Images used in BioCentury Inc.’s Publications, Video Content, Websites, Services, Notices and/or Marketing Materials are licensed from Getty Images (US), Inc. Any such image of a person or object so displayed is being used for illustrative purposes only and any such person or object depicted, if any, is merely a model. For more information see “Use of Images” found under the “About Us” tab on the Homepage at [www.biocentury.com](http://www.biocentury.com).

All information provided through BioCentury Inc.’s Publications, Video and Audio Content, and Websites is gathered from sources that BioCentury believes are reliable; however, BioCentury does not guarantee the accuracy, completeness, or timeliness of such information, makes no warranties regarding such information, and is not responsible for any investment, business, tax or legal decision made or action taken in reliance upon such information.