AN OLD ANTI-ALCOHOLISM DRUG GIVES LUNG CANCER PATIENTS NEW HOPE

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Pressing need for new anticancer drugs

- Lung cancer is the most common cancer in the world – 1.8 million new cases.
- Lung cancer is the leading cause of cancer death worldwide – 1.6 million deaths.
- UK - 44,500 new cases of lung cancer diagnosed and 35,500 people died in 2012.
- The average price of anticancer drugs increased 15-fold over the last 10 years.
- Most anticancer drugs have severe side effects. Moreover, they often do not cure cancer.

Problems for using Disulfiram in cancer treatment

- The potential clinical application of DS in cancer treatment is hampered by its very short half-life in the bloodstream (less than 2 min).
- New formulations of DS with longer half-life in the bloodstream are required to establish the true efficacy of DS in cancer.
- Nano-drug-delivery is a cutting edge technology that enables us to protect and deliver vulnerable drugs in the bloodstream.

Drug repositioning and Disulfiram

- Development of a new drug takes an average of 15 years and costs £1.15 billion.
- Repurposing FDA approved drugs for new uses is an established shortcut between the lab and clinics - An attractive strategy for anticancer drug development.

- Disulfiram (DS) is an anti-alcoholism drug that has been used for over 60 years.
- DS forms a complex with Copper (Cu) that kills cancer cells through generation of reactive oxygen species.

We recently developed and characterized novel formulations of DS such as Liposomal DS (Lipo-DS), Poly (lactic-co-glycolic acid)-DS, DS-Gold nanoparticles and polymeric micelle-DS (DS-NPs).

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