BioSpectrum the business of Bio & Health Sciences

Superbugs boost phage therapy

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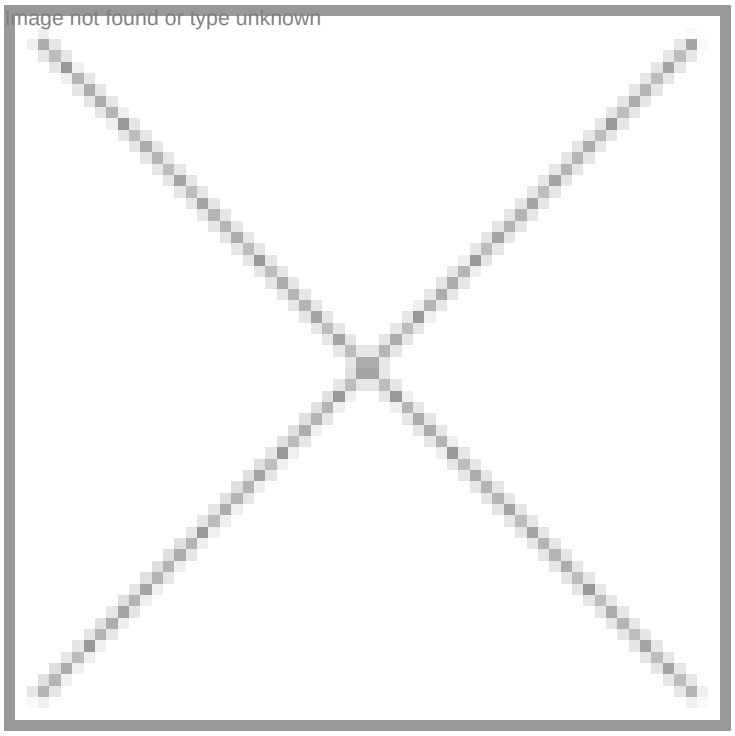

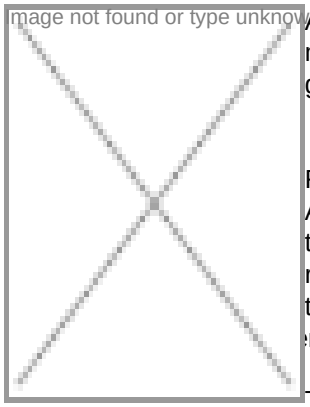

An unexpected consequence of the recent discovery of “superbugs”, resistant to all known and most powerful antibiotic drugs, is the keen interest in alternatives. One of the beneficiaries of this global attention on antibiotic resistance is the renewed interest in a forgotten or neglected phage

For more than a decade, Bangalore-based GangaGen Biotechnologies, founded by former head of AstraZeneca India Research, Dr J Ramachandran, has been at the forefront developing effective treatments to antibiotic resistant bacterial infections using phage therapies. GangaGen’s researchers have crossed the first hurdle in using viruses (phages) that attack only harmful bacteria to develop a drug to tame a wide variety of bugs. Prior to the discovery of the world’s first antibiotic, ming in 1928, doctors in many parts of the world used phages.

The wonder drug, penicillin, and other modern antibiotics relegated phage therapies to the background. However, GangaGen team has developed the world’s first phage-based drug (not just a therapy), and human clinical trials of StaphTAME, which has shown effectiveness against the most widely prevalent bacterial infections caused in hospitals. US regulator, FDA, has already given the go ahead for the clinical trials of StaphTAME.

GangaGen is among the less than dozen companies worldwide, whose work on developing alternatives to antibiotics are key to safeguarding our health in the coming decades.

While Dr Ramachandran’s zeal is helping to make some progress against “superbugs”, the nation’s health authorities arenot so pro-active in developing a concerted plan to develop alternatives to antibiotics. Phage therapy had its beginnings in India, when in the late 19th century, a Canadian scientist noticed the anti-bacterial action in stored water drawn from the river

Ganga. Yet, currently there is only a small research group, of Prof Gopal Nath and Prof. Anil Tripathi at the Benaras Hindu University in Uttar Pradesh and Prof P K Yadav at Jawaharlal Nehru University, New Delhi, working actively on phage therapies. This group has got a small funding of 21 lakh from the Department of Biotechnology (DBT). Preliminary results from their studies indicate successful treatments using phage-based products against some bacteria.

This BHU-JNU research group as well as GangaGen are starved of funds to widen their scope of research. In fact, Dr Ramachandran indicated that if more funds are available, it would be possible to speed up product development so that effective treatments are ready if “super bugs” go out of control in the near future.
Instead of getting worked up over the naming of one of the recent “superbugs” as “New Delhi (NDM-1)”, our government should formulate a National Plan to speed up research on phage therapy, and any other suitable alternatives available to tackle growing antibiotic resistance. A 500 crore National Phage Therapy Action Plan could be a good starting point if the Manmohan Singh government is seriously concerned about the health of India’s future generations.

Meanwhile, things are beginning to look up for the battered BioAgri industry. Even as the minister-induced moratorium on Bt brinjal crop continues, the Genetic Engineering Appraisal Committee (GEAC) has approved the field trials of two new transgenic cotton crops developed by Dow Agrosciences and JK Agrigentics, incorporating new cry1Ac and Cry 1EC genes. More significantly, Syngenta Biosciences has been asked to start field trials of its genetically modified (GM) corn variety containing cry 1AB genes. This is definitely a step forward in pursuing the larger national goal of tapping biotechnologies for food security.

This September issue of *BioSpectrum* has extensive coverage of the CRO industry which is playing an important role in the development of tomorrow’s drugs. India’s decision to set up a National Clinical Trials Registry is also a welcome step to ensure better monitoring of trials and it will go a long way in increasing public confidence in this industry.

Group Editor
<sureshn@cybermedia.co.in>