

## Phage Industry News Letter - Interview, 2010/05/04

**Rosemonde Mandeville**

**CEO, Biophage Pharma Inc.**

*First of all Rosemonde, thank you very much for participating in this interview of the first Phage Newsletter Edition, introduced by Pherecydes Pharma.*

*Phages have been characterized in the early 20<sup>th</sup> century, why is there today a renewal interest in Western countries?*

I believe that patients continue to suffer and die unnecessarily from superbug infections and foodborne diseases; it is mainly because of the exponential rise of multi-resistant strains of bacteria which have rapidly caused one of the worst and most pressing public health problems. Actually, W.H.O. (World Health Organization) has evaluated the situation in 2009 and stated that the problem has reached such a critical point that they warned about the return of the “pre-antibiotic era”.

So the development of alternative anti-infective modalities has become one of the highest priorities of modern medicine and biotechnology. Thus, people are aware that there is no new antibiotic presently in the pipelines, which is why everybody is looking for new ways to fight antibiotic-resistant infections.

*You did create and are currently managing Biophage Pharma Inc. (1993), I believe it was one of the first Western Companies working on bacteriophages after so many years. Why did you create Biophage Pharma?*

I was, at that time, a university professor when I discovered - because of the type of research in my lab -the potential of phages in different areas including diagnostics, therapeutics but also in molecular biology. This was the time I also discovered their potential in the development of new drugs - thanks to phage display libraries. With this information in hand, I thought this was a great base for founding a biotech company based on the unique properties of lytic phages.

Our first objective was the development of new drugs to combat bioagents. My main concern was: how are we going to diagnose and fight bio threats using modern technologies? And one of them is the use of phage for the early diagnosis of bioagents as well as their use as an alternative to vaccines and antibiotics.

*You already mentioned two sectors that are really important for phage product development: therapy and diagnostic. What are the other areas in which one you believe phages have a future?*

Phages have a lot of potential as far as applications in environmental sectors. There are a lot of important avenues you can take with phages mainly because these are lytic phages which do not integrate in the genetic material of the host cell. So, we can look at them as a way to combat bacterial infections whatever the strain of bacteria is; that is why food safety, veterinary applications, environmental sanitation and human therapeutics are fields that we look at, as far as using phages.

The other one is of course the diagnostics, and at Biophage, we are developing biosensors for the rapid and specific detection of bacterial contaminations. We also can produce large quantities of phages (in Biofermentor). People producing drugs are not very keen on developing Biofermentor for mass production of phages. So that is why one of the things that we do at Biophage is producing big quantities of these phages in a very secure environment.

*You were talking about Big Pharma before we start. Today, Big Pharma are not investing in technologies based on phages. Why is that and do you believe this is going to change in the future?*

Big Pharma are still very keen on using antibiotics because this is a very big tool that they already have, and they are looking at phages on the sideline to see what development are being done. But I believe that this is going to change, they have no choice but joining the parade. We have seen what happened with the generic drugs: the Big Pharma have fought for a long time against generic drugs and now they are producing them themselves. So now that the regulatory agencies have accepted the use of phages for sanitation or treatments of food, and as it becomes more and more accepted by an increasing number of companies, this is going to make things change. I have been invited to give lectures in very big summits where all Big Pharma were present, and there is a keen sense that things are going to change.

Now that FDA approved the use of lytic phages as food additive and EPA also allowed them to be used in the agriculture sector, this is the beginning of an increasing interest in the phages for therapy and diagnostics.

*Thank you very much for your time and your participation; it was Rosemonde Mandeville - CEO, Biophage Pharma.*