**Global future for personalised therapeutics**

*What’s in store at the 2017 Pharmaceutical Sciences World Congress (PSCW17)? The International Pharmaceutical Federation (FIP) gave congress chairman Professor Meindert Danhof the opportunity to tell us.*

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Imagine a world in which pharmaceutical treatment is personal and individualised. Each patient is considered separately and the therapies they receive are tailored for their individual needs and biology. Not only that, but these treatments are available globally; to minorities, to those with rare diseases and to those in the developing world. The 2017 Pharmaceutical Sciences World Congress (PSWC17) aims to bring the pharmaceutical sciences community together to address these possibilities and to facilitate the discussions that need to occur to make them a reality.

**Systems therapeutics: the future of pharmaceutical science**

The overarching scientific theme of PSWC17 is that of “systems therapeutics”, a novel direction that is shaping the future of pharmaceutical science research. This is based on the principles outlined by systems biology, an emerging field that is rapidly developing and creating unprecedented opportunities to develop novel drugs. It enables us to identify the pathways of disease, to discover drug targets and to identify the biomarkers that will enable treatment response to be monitored. Through the progress made in this field in recent years, the systems approach to therapeutics has been defined and we are now seeing the possibility for development of highly personalised and individualised therapeutic interventions that will revolutionise medicine and health research.

The vision for the future is that systems therapeutics will be personalised with respect to both the selection of drugs and dosing regimens. It will be disease modifying and aim to create pre-emptive and preventive treatments. And it will be complex, employing multi-target drugs, rational drug-drug combinations and drug-device combinations. However, a number of hurdles will need to be overcome to enable this novel approach to become common clinical practice. For example, there are major implications for the manufacture of medicines and for the quality control that needs to be implemented to ensure that they are administered effectively. Systems therapeutics will also have a major effect on the regulatory sciences and regulatory approval. As such, PSWC17 has been organised to run along five separate tracts that follow the paths of drug discovery development and implementation. Here, experts from all disciplines of the pharmaceutical sciences will to join forces and address these aspects.

The first three congress tracts focus on: fundamental and translational sciences; drug delivery and targeting sciences; and formulation and manufacturing sciences. This is where the core science discussions will take place. The first tract will allow scientists, researchers and clinicians to discuss recent developments in the understanding of the mechanisms of disease, designing therapeutic interventions and delivering these to patients. The second will focus on how to get drugs to the site of action or intervention. And the third will consider how therapeutic formulations can become personalised and individualised. The final tracts, regulatory sciences and science-based practice, will concentrate on the approval of these novel medicines and how and when they can reach the market, together with how best practice can be applied to personalised and individualised therapeutics.

**Global harmonisation and open innovation**

Pharmaceutical science also needs to consider the society that it serves. In the future, it needs to address the importance of creating access to new therapies for patients all over the world; to minorities, those with rare diseases, and those in developing countries. But how can we make this happen?

The PSWC was established in 2000 with this exact aim: to establish lines of communication between all those involved in the pharmaceutical sciences globally. This stated purpose makes the congress a key date in the diary of scientific experts, researchers and clinicians, giving them an opportunity to meet and discuss techniques, advances and discoveries. However, the congress also welcomes many others: in particular, those involved in regulation and manufacturing of pharmaceuticals who have a key part to play in facilitating the development and implementation of new therapies. Patient groups are also becoming increasingly active and the congress welcomes their representatives. In this manner, the congress provides an avenue for new types of interdisciplinary discussion and collaboration.

Under the umbrella theme of “future medicines for one world”, PSWC17 aims to highlight the importance of global communication and bring it to the forefront of discussion throughout the congress. Through global communication, progress can be made towards the global harmonisation of drug regulation and approval, allowing for global access to therapeutics. With the aid of sponsorship, those in developing countries will be able to attend, network and to build relationships within the community. Education and training is of utmost importance in enabling developing countries to take part in collaborations and ultimately have the desired access to therapeutics, and the congress is running short courses to facilitate this. Establishing these lines of communication is also important because developing countries are important target groups when considering whole population analysis of new pharmaceutical therapies.

Global collaboration can facilitate “open innovation”. At present, we see most drugs being made and developed by large pharmaceutical companies. However, through open innovation, partners and smaller companies have been getting together to develop new therapies for the market. By making the most out of each other’s expertise and exchanging ideas, they have set up screening centres that profile molecules, and data are shared and examined collectively to facilitate the development of new compounds. This transparent method of therapeutic development is particularly attractive to patients and receives public support.

**Future pharmaceutical scientists**

To ensure progress continues in the pharmaceutical sciences, networking and facilitating discussion between experts is vital. We also need to ensure the next generation of scientists is equipped with the right skills, knowledge and communication channels to progress in their careers and be able to tackle the future requirements of pharmaceutical development. This is why there is a pre-conference satellite session for young scientists attending PSWC17 at Uppsala University. They will then be invited to report on their views on education and training at the main conference and also to act as co-chairs of sessions and organise “meet the expert” sessions. Through these initiatives we are creating opportunities for them to develop into the pharmaceutical scientists of the future.

**All good things come every three years**

Pharmaceutical scientists should adopt the phrase, “All good things come every three years” as they look forward to this upcoming triennial PSWC. From 21–24 May 2017, pharmaceutical scientists from around the world will gather in Stockholm, Sweden. The congress has always focused on maintaining and establishing global lines of communication and this time around the emphasis will be on how medicines of the future can be made available to the whole world.