Accelerating Drug Discovery By Outsourcing to Specialized Contract Research Organizations

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Modern Drug Discovery research requires a complex set of pharmacological competencies and technologies that usually are not present in one single site. This is true both for basic or applied pharmacology research performed in the industry or in academia. Continuous updating of advanced technology may represent and unsurmountable obstacle for many research groups lacking of sufficient financial investments. To face competition at international level, research groups need to set up networks in which they can find the technologies they need. However, to achieve a meaningful standard, time and resources are needed and not always the objective is fully met. One possible solution is to use external specialized supplier which can offer a broad range of scientific support, including state of art in vitro and in vivo models, imaging technology, electrophysiology and drug discovery and development capabilities from target identification to clinical studies. Advantages of outsourcing strategy include rapid access to high quality methods and competencies at reasonable cost while avoiding investing in people and infrastructure directly.

In the last decade, the business of contract research organization (CRO's) has evolved from providing low-end research services to more value-added high-end research, from a tactical approach to more strategic partnership, from commodity services to more integrated services.

The leading CROs are commodity full service providers operating on a global scale. They act as one-stop shop for all services, from early discovery to through marketing.

Aptuit has fully embraced this challenge through the acquisition of the Medicine Research Centre in Verona (Italy) from GlaxoSmithKline. The Verona Centre (www.aptuit.com) has a world-class reputation for discovery and development of innovative drugs in the neuroscience, anti-infective and cardiovascular therapeutic areas and can be considered as a one-stop shop for projects spanning from the hit identification to the proof of concept (POC) clinical studies. In the above therapeutics areas, a number of pharmacological, biochemical, cell based, ex-vivo and in vivo disease models are available. For example in the field of neuroscience, brain distributed targets belonging to the GPCR, ion channels, enzyme, transporters families, have been expressed in recombinant cells to allow their pharmacological and electrophysiological evaluation. Moreover, primary culture and ex vivo native preparations are utilized early in the project progression before compounds testing in disease animal models (e.g. anxiety, depression schizophrenia, pain, epilepsy, sleep, cognition). Technological platforms based on calcium imaging, luminescence, fluorescence resonance energy transfer, radioisotopes, label-free surface plasmon resonance and patch-clamp, in 384, 96, 48 and 16- well plate format are all available for hits identification, leads generation and leads optimization phases. Finally, capabilities for determining circulating biomarkers, brain target engagement and function are used to make more translatable into clinic the preclinical results.

In conclusion, outsourcing single test or part of drug discovery and development to Aptuit srl may represent one possibility to accelerate pharmacological research for Academia, Small Biotech and Parma Companies.