



atugen AG Signs Technology Evaluation Agreement with Arena Pharmaceuticals

Berlin, Germany, 10 September, 2001 - atugen AG, a Berlin-based functional genomics company and one of the leaders in the field of therapeutic gene discovery and validation, announced today the signing of an agreement with Arena Pharmaceuticals, Inc to evaluate the application of atugen's technology in Arena's research and development efforts in the area of G-protein coupled receptors (GPCRs).

Under the terms of the agreement, atugen AG's wholly owned subsidiary, atugen USA, Inc, will receive from Arena a set number of central nervous system (CNS) gene targets to be evaluated in specific cell lines. atugen will optimize its GeneBloc® and cellular delivery technologies to 'knock-down' the expression of these targets. Arena will then use the GeneBloc molecules to evaluate gene function in CNS *in vivo* models. Financial terms were not disclosed.

"Arena's interest in using our GeneBloc molecules to investigate CNS systems *in vivo* is a validation of the flexibility and transferability of our technology," stated David Traylor, atugen USA's Senior Director, Business Development. "To date, *in vivo* target validation using knockout animals has run into problems due to disruption of embryonic development. Because GeneBlocs can be utilised at a later stage of development, this problem is circumvented, and we can see a more accurate reflection of potential drug activity."

"We are well aware of the contribution antisense oligonucleotide approaches have made to the validation of peripheral drug targets," commented Dr Martin Gore, Senior Scientist, Neuroscience at Arena. "Arena is interested in assessing antisense technologies as a method for the *in vivo* validation of CNS targets. We hope that this Technology Validation Study will uncover the general utility of antisense oligonucleotide technologies, particularly atugen's proprietary GeneBloc technology, for CNS target validation".

atugen's proprietary GeneBloc technology offers a powerful and rapid approach to define gene function, based on the delivery of specially designed oligonucleotides that reduce expression of specific genes in designated cells. atugen's GeneBlocs together with their delivery vehicles allow a very selective, low toxicity approach to knock-down gene expression over many days in a variety of cell types. Furthermore, atugen's technology overcomes the problems associated with *in vivo* target validation using 'target knockouts', which result in the total inhibition of gene function from embryo to



adult. Target knockouts run the risk of creating false positives, in some cases indicated by death, because of unnatural disruption of embryonic development. atugen's technology can be utilized after the genes have already fulfilled their developmental role *in utero*, as well as throughout development.

Arena Pharmaceuticals, Inc. is an emerging biopharmaceutical company focused principally on discovering pharmaceutical products that act on an important class of targets called orphan G protein-coupled receptors, or GPCRs. Arena has developed a technology called Constitutively Activated Receptor Technology, or CART™, that can be applied to GPCRs and other receptors.

www.arenapharm.com

atugen AG, is a German biotech company with its headquarters in Berlin and a subsidiary in Boulder, Colorado, USA. Using GeneBlocs, atugen aims to discover and validate pharmaceutical targets faster than other technologies. atugen's mission is to provide its pharmaceutical partners with cost-effective high throughput target analysis, as well as *in vitro* and *in vivo* validation. This can accelerate the development of novel drugs in its customer's laboratories and in its own independent research. atugen already provides target discovery and validation services to Agouron, Bayer, Roche BioScience, BASF, Boehringer Ingelheim, Astra Zeneca, Millennium, Schering AG and its US affiliate, Berlex Pharmaceutical Corporation, as well as to others.

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