NeuroXM^{TM} Brain Science Suite Version 1.1

NeuroXM^{TM} Brain Science Suite Version 1.1

Planegg, 26. July 2019 – The NeuroXM Brain Science Suite is a compelling solution for extracting features and biomarkers from neuroimages and to store, manage and analyze brain-related features. The version 1.1 provides new data modalities, further search and visualization capabilities and new brain simulation features.

The most important novelty in version 1.1 is the implementation of Mouse Allen Brain Atlas to NeuroXM suite. The Mouse Allen Brain Atlas is the most extensive source of gene expression data of the mouse, which is currently publicly available. Biomax developed a NeuroXM knowledge model for mouse gene expression data and imported the whole dataset to NeuroXM Brain Science Suite. Every brain area and every gene for which gene expression values are available are annotated and classified by metainformation from Human Allen Brain Atlas ontology and the Gene Ontology (GO), respectively. With this new source for information, cross-species searches and comparisons between gene expression in mouse and human become easily possible - an approach highly attractive to pharmaceutical companies as they can predict the binding compounds to their targets at a very early stage of drug development by comparing gene expression profiles between mouse and human.

Additionally, the new version of NeuroXM Brain Science Suite comes with an enhanced visualization for mouse and human brain data. A transparent hull of the brain derived from a standard brain for each species gives anatomical land marks and reference points for any feature that is shown. The visualization is three dimensional, fully interactive and exportable to PNG file format.

Finally, the new version adds a new feature to the NeuroXM connectome simulator component as now also the loss of white matter, e.g., caused by multiple sclerosis, can be simulated. We took healthy subjects from the Human Connectome Project and created virtual white matter lesions and simulated the brain rewiring after the loss of white matter. While mild forms of white matter loss were compensated successfully by connectome rewiring, more severe forms of white matter loss showed an accelerated simulated degeneration by network rewiring. The found qualitative results fit well to courses of MS patients' connectome degeneration. The NeuroXM simulation results were already presented at the Multiple Sclerosis specific IMSCOGS meeting in June 2019 in Amsterdam.

"The additions made in this new version of the NeuroXM Brain Science Suite are a natural continuation of the product development and will make the product even more attractive to pharmaceutical as well as clinical researchers", Klaus Heumann stated, CEO of Biomax.

About Biomax
Biomax Informatics provides computational solutions for better decision making and knowledge management in the life sciences. They help customers generate value by integrating information from proprietary and public resources to enable a knowledge-based approach to developing innovative life science products. Biomax's worldwide customer community includes clinics, companies and research organizations that are successful in drug discovery, diagnostics, fine chemicals, food and plant production.

Contact:
Dr. Markus Butz-Ostendorf
Innovation Manager Brain Science
Senior Product Manager
markus.butz-ostendorf@biomax.com