Streamlining Data Management for Precision Medicine at the Preclinical Imaging Core at TUM

The Center for Translational Oncology Research at the Technical University of Munich (TUM) is a cross-disciplinary resource for scientists in the fight against cancer. The Center's Preclinical Imaging Core at TUM (PICTUM) features advanced imaging equipment for preclinical research.

PICTUM is using Flywheel as a secure, centralized data management solution to store research data for different labs using a variety of imaging modalities, such as MR, CT, and PET. At the Collaborative Research Centre 824 "Imaging for Selection, Monitoring and Individualization of Cancer Therapies" (SFB824), researchers have adopted Flywheel as their data management platform to securely organize multimodal images and streamline remote data access and processing.

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> "Flywheel allows us to store multimodal imaging data from different instruments in one place, facilitating data analysis for every researcher,"
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> - Franz Schilling, PhD, Assistant Professor for Biomedical Magnetic Resonance at TUM

Managing Multimodality Imaging

With Flywheel, PICTUM is able to provide streamlined data access and management for its users.

- The SFB824 develops novel imaging technologies to improve cancer treatment success by combining molecular imaging, imaging biomarkers, and biological data to help select the therapy that best matches an individual's needs.
- Prior to Flywheel, researchers were using decentralized data structures that were difficult to access.
- MR, CT, PET, and MSOT data from Bruker, Mediso, and Siemens devices are automatically captured and stored in Flywheel.
- Data is organized by a standard research hierarchy of groups, projects, sessions, and acquisitions.
- All data, metadata, and results are searchable and can be added to collections for further analysis.
- Data can be instantly accessed in the office or at home after acquisition.
- Images can be downloaded for local processing or processing can run within Flywheel.

With Flywheel installed, researchers can easily access and immediately analyze their data to deliver results faster so that optimal treatments can be more quickly developed.

Integrated Data Viewing

At PICTUM, imaging core administrators use Flywheel to visually inspect images for quality and browse images for sharing.

- Data can be qualitatively viewed via the Flywheel web interface.
- DICOM header information is available for context about an acquisition and further processing.

Supporting Data Security

Flywheel's flexible deployment options allowed PICTUM to install Flywheel on premises, thus ensuring adherence to strict data privacy and security regulations.

- Imaging data is pushed to a file system, where data is monitored and captured by Flywheel.
- Logging in with official institutional credentials via Flywheel's federated identity service ensures strong user authentication.

With Flywheel, researchers at PICTUM can quickly and securely access and share data. Instead of spending time finding and organizing data from different equipment and systems, they can increase their research productivity to enable improved quality of cancer care.