FaceBase: Data Sharing Community for Dental, Oral, and Craniofacial Research

Alejandro Bugacov, Jifan Feng, Joseph Hacia, Thach-Vu Ho, VyVy Nguyen,
Laura Pearlman, Robert Schuler, Cristina Williams, Carl Kesselman, & Yang Chai
University of Southern California

The FaceBase Consortium (facebase.org), established in 2009, is supported by the National Institute of Dental and Craniofacial Research (NIDCR) and provides a freely available repository of data for the scientific community on craniofacial and dental development in humans, mice, zebrafish, and other model organisms. FaceBase is a trusted source of research and educational resources on craniofacial and dental development in humans and animal models.

FaceBase fosters a world-wide research community for data sharing that jumpstarts research. We encourage data submissions from the scientific community and accept a broad range of research data from basic to translational. Domain experts curate and integrate datasets to provide a high-quality, comprehensive resource for the broader community by making data *FAIR* – findable, accessible, interoperable, and reusable.

www.facebase.org: The trusted data resource for craniofacial researchers worldwide

FaceBase is an NIDCR-supported resource for the dental, oral, and craniofacial (DOC) research community

- Boasts 1045+ datasets and growing – human, mouse, zebrafish, chick, and chimpanzee (other models welcome)
- Promotes multidisciplinary collaboration and research in development, molecular genetics, and genomics
- Integrates genomic and phenotype data from multiple species
- Includes research on the developmental biology and genetics of a variety of craniofacial structures
- Expanded focus to include clinical and public health data to embrace the entire translational spectrum
- Provides high-quality datasets to members of the research community for use in their own projects

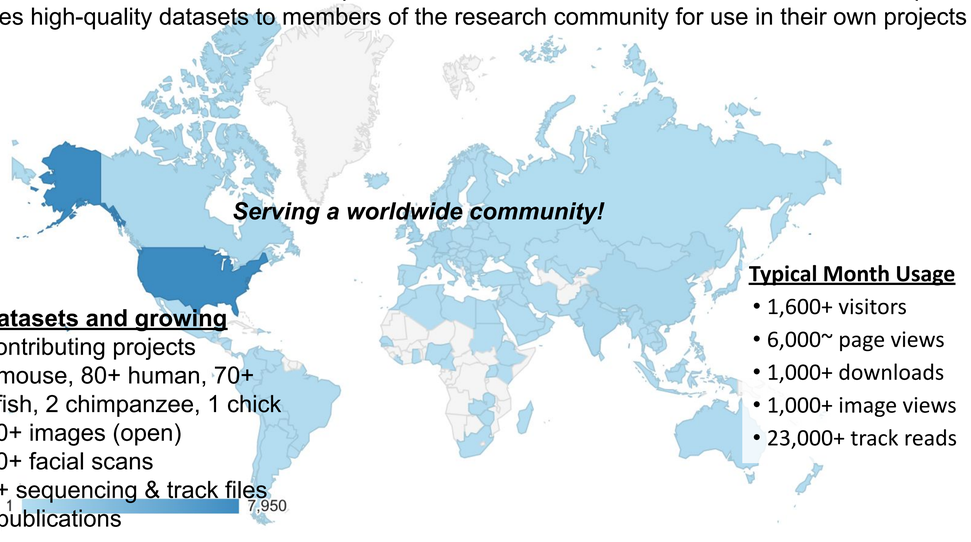

Figure 2. A growing, multi-faceted digital repository. FaceBase serves a worldwide community.

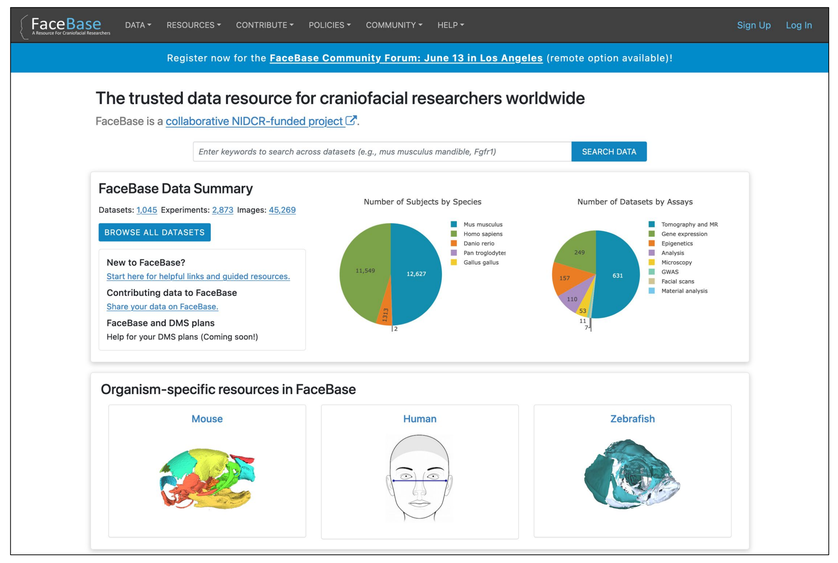

Figure 1. FaceBase Site. Cloud-based data services with a powerful online interface for searching, retrieving, and visualizing a broad and diverse collection of data resources.

FaceBase provides:

- Cloud-based (STRIDES) platform for data, integration, analysis, and visualization
- High-quality datasets ready for Artificial Intelligence and Machine Learning (AI/ML) analyses
- Online visualization of single-cell and bulk omics, 2D and 3D imaging, surface meshes, and more
- Atlases of craniofacial development in multiple species, including humans
- Specialized resources such as the facial norms database, human genome analysis interface, and more
- Standardized terminologies and ontologies to accurately and precisely label and describe data
- User-friendly tools enabling data contributors to upload and annotate their data for re-use
- Proper data citations including Digital Object Identifiers (DOI) for all datasets
- A means of fulfilling Data Management & Sharing (DMS) mandates

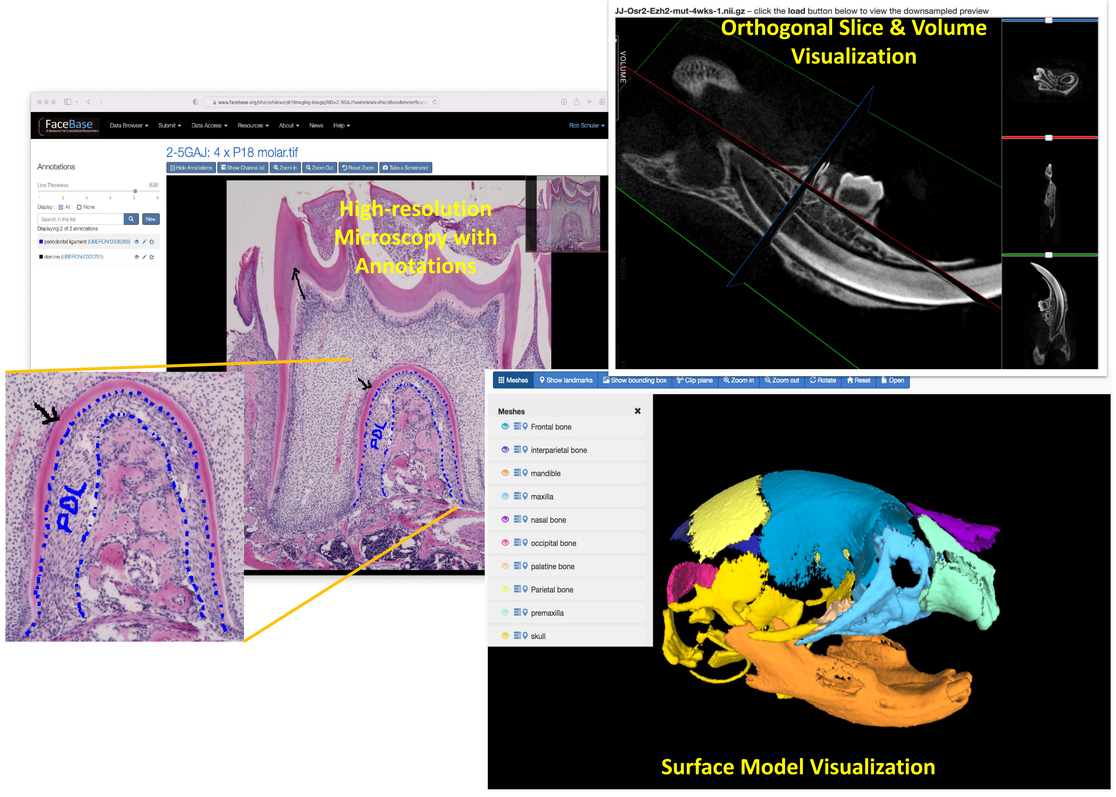

Figure 3. FaceBase visually-guided search and online imaging visualization. FaceBase provides an interactive, fully customizable 3D surface model visualization (bottom right) that enables users to examine microCT data including anatomical landmarks; high-resolution microscopy image viewer and annotation editor (left); orthogonal slice viewer with volume visualization feature (top right).

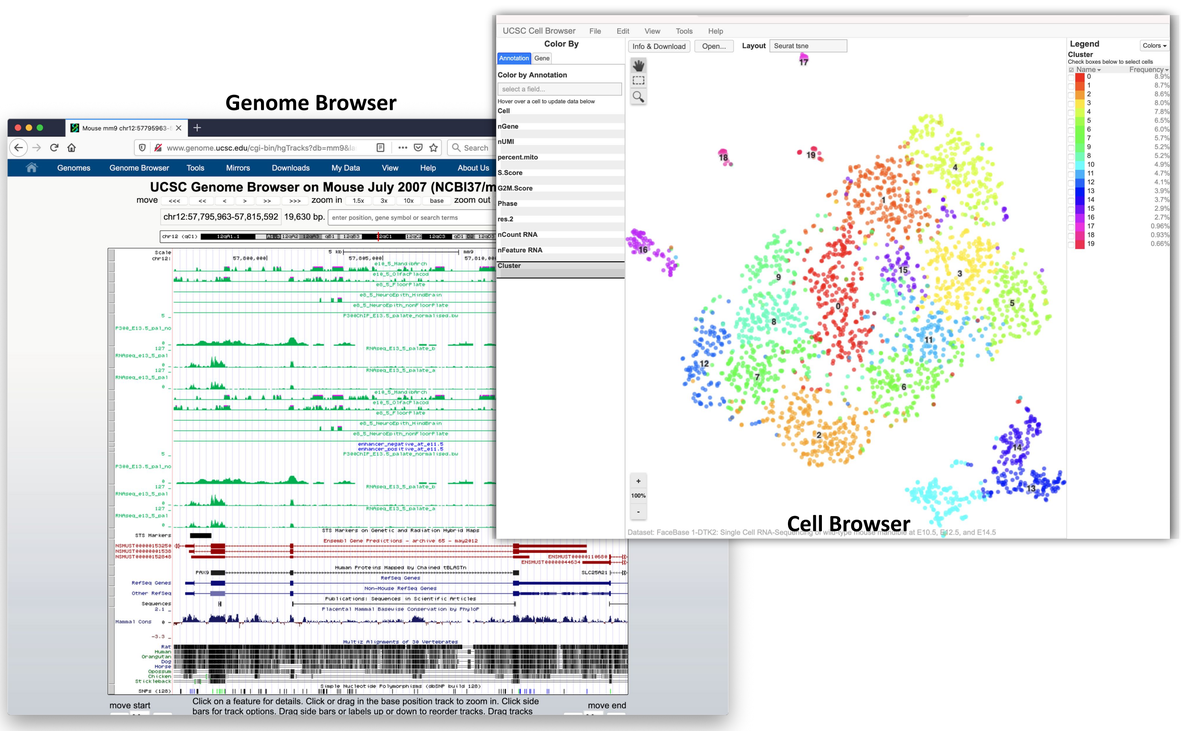

Figure 4. FaceBase genome (left) and single cell visualization (right). FaceBase operates a public, registered "track hub" integrated with the UCSC Genome Browser for visualization of bulk RNA-seq and ChIP-seq data. In addition, FaceBase generates visualizations of its single-cell RNA-seq data using the UCSC Cell Browser.

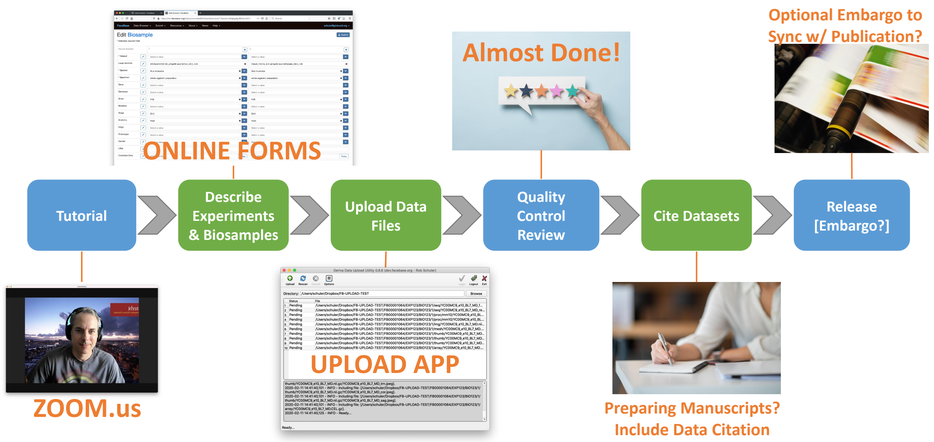

Figure 5. Data submission and publication pipeline. User-friendly online forms and graphical desktop applications, automated data processing and quality control. Time your data release with your manuscript publication.

Why submit your data to FaceBase?

- A home for dental, oral, and craniofacial (DOC) and related data resources provides a unique context in which to share your valuable datasets with the research community
- Your data are treated as citable, academic works – archive-grade Digital Object Identifiers (DOIs) persistent, historical records of your datasets; controlled access for restricted datasets
- A means of fulfilling NIH-mandated data management and sharing (DMS) plans, as well as the data sharing requirements of a growing number of publications
- Increases the visibility of your research and cross-references with your publications
- Go to: https://www.facebase.org/contributing/submitting/form.html

Scan to visit FaceBase.org

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