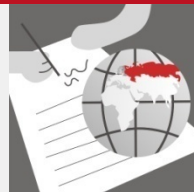
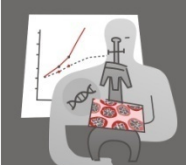


CURELINE:

California-Based Translational Research CRO

Specializing in HBS Procurement, Analysis and Precision R&D Services



*17 Years of
Human Tissue Excellence*

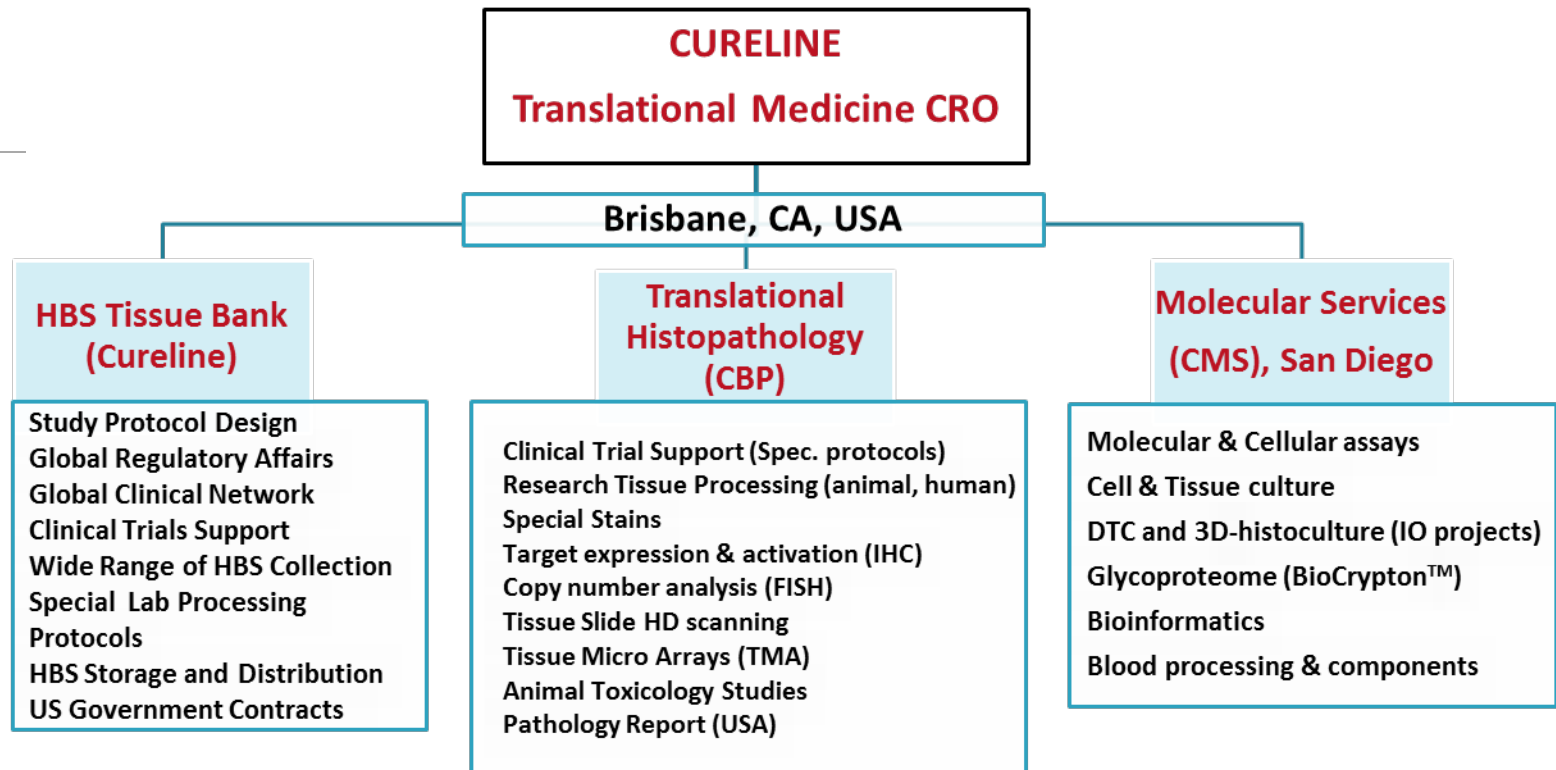


CURELINE GROUP – Global Presence in 2020



- **700 clients** worldwide (pharma/biotech, academia, government, hospitals)
- International Clinical Network Operations (**130+ centers, 20 countries**)
- Over **350 projects annually** (4,000+ completed)
- Effective regional and local **Distributors** (Japan, UK, EU, Asia/Pacific)
- **HQ in California** (USA) and worldwide clinical outreach

CURELINE Group Services: Biobanking +++



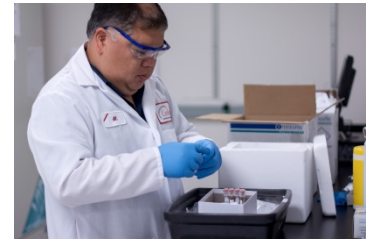
2003 – 2008

SERVICE DEVELOPMENT TIMELINE

2008 – 2020

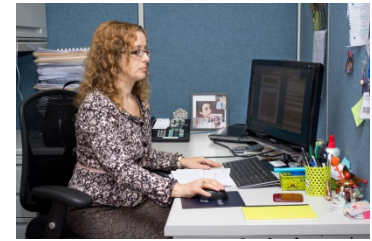


I. CURELINE Expertise: Biobanking



- **Custom HBS acquisition study design and implementation:**
 - Precision medicine (therapeutics, molecular and companion Dx)
 - Biomedical research (commercial and academic)
 - Medical devices (assay design, validation studies, clinical trials)
- **California-based biorepository (San Francisco Bay area):**
 - About **50,000 samples** (LN2, -80C freezers, controlled ambient temperature)
 - **7,000 individual** clinically-defined **cases**
 - Comprehensive de-identified clinical data for each clinical case
 - Wide range of specimens formats: tissues, biofluids, cells, etc.
 - Major therapeutic areas: Oncology, Immunology/AID, ID, CV, etc.
 - FDA-compliant databases (FreezerWorks/Pro, PathXL, CITRIX medfiles)
- **17 years of expertise** in commercial biobanking for precision medicine:
 - Targeted therapeutic research and development
 - Biomarkers discovery and development
 - Molecular Dx and Companion Diagnostics (CDx) development
 - Clinical trial support: IHC assay development (CBP), biospecimens collection, protocol / SOP development, site management (selection, training, monitoring)

II. CURELINE Expertise: HBS Management



- **Sample Management Consulting:** resources, processes, technology, equipment and infrastructure evaluation and advise
- **Sample Management Solutions:** control, compliance and cost-saving
 - Sample storage: long- and short-term solutions, secure location, controlled temperature options: RT, 2-8C, -20C, -80C, -190C (LN2)
 - Sample inventory management: server- and web-based 21 CFR Part 21 compliant DB options for fast and secure control of clients' HBS information
 - Individual login/authorization/access options
 - Sample Distribution: retrieval and shipment by client request; qualified transportation services (IATA and US DOT trained and certified personnel)
- **Laboratory Services** (sample preparation):
 - Transfer into desired matrix components:
 - blood derivatives: serum, plasma, PBMC;
 - molecular analytes: DNA, RNA, protein (extraction and verification)
 - Volumetric and normalized aliquoting
 - OCT and FFPE tissues blocks and slides preparation
 - Pathology assessment and QC
 - HD image scan and analysis
- **Clinical Trials support:** Collection kits (design, labels design/printing, ordering, TSS training, delivery); site management; HBS receiving, processing and management.

III. CURELINE Immuno-Oncology Services



- **3D histoculture** – investigation of drug effects in fresh human tumor prepared *ex-vivo* for 12-48 hours culture
 - FFPE and/or FF tumor tissue (RNA, DNA, morphology, IHC)
 - Frozen culture supernatant (cytokines expression analysis)
- **“Tumor soup”** – preparation of dissociated tumor cells (DTC) from an individual human tumor (cancer cells, stromal cells, inflammatory components)
 - Viable cell in DMSO-containing media
- **PDx Models (viable tumor pieces)** – investigation of drug response *in vivo* (modeling of multiple human tumor types in mice)
 - Primary human tumor fragments frozen in DMSO-containing media
 - Human xenografts from mice frozen in DMSO-containing media
- **Matching Oncology HBS Sets** – correlative investigation of Biomarkers and Immune-specific events
 - LBx (serum, plasma; standard & special protocols)
 - PBMC (viable preparation, within 2 – 4h post blood draw)
 - Tumor tissue (FF, FFPE, viable preparation)

IV. Cureline BioPathology (CBP) Services



- **Standard histology:**

- Wet tissue processing
- Tissue sections (FFPE/OCT)
- Tissue curls (sterile/RNA)
- H&E and special stains

- **Special Stains**

- Normal Human Tissues
- Hematology (blood and BM)

- **Cross-Reactivity (FDA, IMEA)**

- Rapid autopsy (2 – 6 h PMI)
- Fresh-frozen (FF) and OCT
- Fixed (FFPE blocks)
- Antibody cross-reactivity

- **IHC & FISH**

- Target expression / activation
- 100+ standard protocols
- Custom Ab assay development
- Fluorescent staining and image analysis (Zeiss)
- Biomarker assay development

- **TMA: Cancer and Normal Human Tissues**

- Thousands samples ready to go
- Custom selection
- Custom acquisition (Cureline)
- Various TMA design parameters
- Pathologist review / area selection
- Semi-automated printing
- H&E slides preparation
- IHC staining + image/HD scan

- **Special protocol development** for human tissue processing in clinical trials (Phase II): Collaborative efforts with Trial Sponsor, Clinical Network, Academic Investigators, Manufacturer

- Special equipment / reagents

- IHC / FISH staining + image/HD scan

- **Digital pathology** and image analysis

- Pathology report (USA)

V. Cureline Molecular Services (CMS)



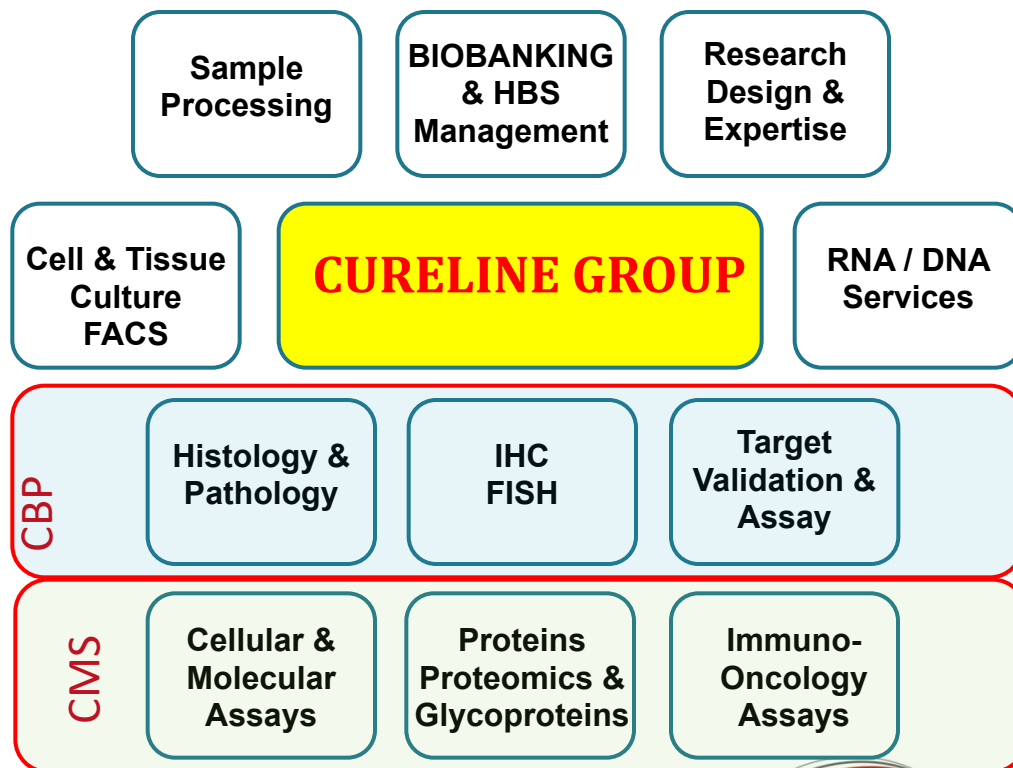
- **HBS Collection and Preparation for All Studies:**
 - Consulting on a study design (HBS use for R&D and validation studies)
 - Transfer of CTB and Customer samples into desired matrix components:
 - blood derivatives: serum, plasma, PBMC, BMMC
 - molecular analytes: DNA, RNA, protein (extraction and verification)
 - Stem / Progenitor cells isolation from fresh lipoaspirate
 - 3D-Histoculture and DTC for Immuno-Oncology studies
 - Volumetric and normalized aliquoting
- **Biomarker Discovery and Validation:**
 - Nucleic Acids (RNA, DNA, cfDNA, microRNA, etc.)
 - Cell-based assays (all kinds)
 - Molecular profiling for mutation panels and Case ID
- **Proteomic Studies:**
 - Protein lysate and fractions isolation, QC and analyses
 - Protein array (reverse phase)
 - Total proteome (LC-MS)
 - Glycoproteome (BioCrypton™)
- **Custom Protocols**
 - ELISA & Antibody characterization
 - Molecular and Cellular Biology

Unique Cureline Qualifications as a Fusion CRO

Human Biospecimens (HBS) and related services are offered with limited scope by biotech companies, CRO, CMO and laboratories.

CURELINE GROUP offers a unique range of services:

- Clinical study design
- Research protocol expertise
- Sample collection (biobanking)
- Sample management
- Sample Processing:
- Proteomics/glycoproteomics
- Molecular assays
- Cellular Assays
- Immuno-Oncology Assays
- Histology/pathology services
- Immunohistochemistry / FISH
- Target validation / assay
- Bioinformatics



CURELINE Competitive Advantages

- **World-class translational medicine and biobanking expertise:**
 - Founded in South San Francisco in **2003** by former **SUGEN**ites
 - Successful commercial biobanking operations for **17 years (700+ clients)**
 - Global clinical operations in **20 countries** with **130+ TSS** (clinical sites)
 - Excellence in global biobanking regulations and **regulatory compliance**
 - **Standardized biobanking protocols**, NCI/ISBER Best Biobanking Practices and CAP-spirited Quality Management system
- **Validated biotech/clinical Executive Management Team** with extensive expertise in Oncology, Inflammation, Diabetes, ID, CNS and other therapeutic areas. Currently 25+ highly qualified FTEs and 30+ consultants.
- **Excellent customer base:**
 - **24/30 top pharma, 6 top biotech** companies, Dx giants, major CROs, startups around the world
 - Multiple US government contracts:
 - contractor for **TCGA** (2010-2015) and **CPTAC** (2015-current) programs (NIH)
 - FDA: verified HBS supplier
 - Major league Universities (Stanford, Harvard, UCSF)
 - Distributors in global markets (Japan, UK, EU, Singapore)
- **Strategic geographical location** (South San Francisco, CA) and proximity to Silicon Valley with access to newest technology, experienced personnel and consultants, world-class academic collaborations, equipment, and local/international logistics

Outstanding Business Environment

Cureline Group of companies is located in the heart of the San Francisco Biotech Bay – one of the most advanced biotech hubs in the United States and in the world

- The facilities of Cureline (human biobank), Cureline BioPathology (translational histopathology laboratory) and BioCrypton (diagnostics start-up) are located in the San Francisco Biotech Bay (California, USA) attracting big pharma, biotech, medical device and manufacturing organizations.
- San Francisco Biotech Bay is a center of the pharmaceutical industry in the US, providing a positive cluster environment and life sciences rich infrastructure that allows companies like Cureline Group to prosper.
- San Francisco International Airport (SFO) is within 10 minutes driving distance, providing easy access to the US, Europe and Asia based customers.
- Major academic institutions including Stanford University, Berkeley, and UCSF (all are Cureline customers) are located within a radius of 10 – 20 miles, providing excellent access to expertise and future employees.
- San Francisco Bay area is a Birth Place of Biotech with over 400 life sciences companies residing here



Cureline Group Facilities

Cureline Group HQ currently occupies ~6,000SF of laboratory and office space in **Brisbane , CA (San Francisco Bay area)**

- Executive Offices and open office space with 12 work stations
- Life sciences laboratory dedicated to HBS tissue bank, including three areas with specific requirements:
 - **ULT storage/sorting laboratory** (LN2 storage area, -80C freezer area, frozen specimens sorting area and dedicated back-up generator).
 - **Ambient temperature HBS processing laboratory** (FFPE and slides storage and sorting area; collection kits and documentation area; shipping area).
- **Cureline Molecular Services** laboratory in **San Diego, CA** is dedicated to cell culture, tissue culture, DNA/RNA/Protein analyses, sequencing and other high-end scientific services. ~1,500SF lab/office.
- **Cureline BioPathology** is co-localized with Cureline and has specialized histology laboratory space for tissue processing and analyses (2 dedicated laboratory rooms).
- **BioCrypton** has an office and laboratory space, and conducts its laboratory operations from Cureline Group Headquarters.



Olga Potapova, PhD

Founder, CEO and Scientific Director, Cureline TCGA and CPTAC Principal Investigator

- 25+ years of leadership in research (genetics, signal transduction in aging and cancer, diagnostics, translational & precision medicine)
- International recognition in the fields of biobanking, laboratory service, and management of multinational pre/clinical research projects
- Academic, biotech and big pharma R&D experience
- Excellence in translational medicine and drug development (SUTENT)
- Founder and CEO of Cureline, Inc., since 2003
- Co-Founder and Managing Partner of Cureline BioPathology LLC since 2008
- TCGA and CPTAC Principal Investigator since 2010
- President of BioCrypton, Inc., since 2014
- Managing Partner of Cureline Molecular Services LLC, since 2019



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