



Tissue Solutions

Working with you. For you.

World Leaders in Human Tissue Provision





At Tissue Solutions, we provide rapid access to high quality biospecimens with guaranteed ethical compliance.

Tissue Solutions offers you a single access point for high quality human biological materials for all your research and development needs. We are an ISO 9001:2015 certified supplier, with a fully complaint network of more than 150 sources offering guaranteed ethical compliance. Samples include diseased and normal tissues in fresh, frozen and FFPE formats. We find the tissues you require, to your specifications and will deliver them to your door.

We provide high quality and well-characterized samples to biotech companies, the pharmaceutical community and CROs worldwide. We also manage customized and prospective tissue acquisition projects and give specialized advice relating to all aspects of the acquisition process, including input on project design.

We appreciate that you would rather spend your time finding new biomarkers and developing, testing and validating novel drugs to cure human disease than spend your time sourcing material, so let our dedicated Tissue Acquisitionists lessen your workload and become a virtual part of your team.

We guarantee the highest possible ethical compliance, offering reliable and efficient sourcing of biological material worldwide.

Banked Samples

Pathology verified frozen and FFPE tissues are available from a wide range of disease states.

We can supply donor matched tumour and NAT (normal adjacent tissue) and meet your % tumour requirements. Surgical samples are typically frozen within 15 -30 minutes of resection and can be supplied as blocks or slides. TMA formats are also available.

We can supply surgical excess and post mortem tissues from donors with different conditions including:-

Cancer - Breast, Pancreas, Prostate, Uterine, Glioblastoma, Melanoma, Head & neck, Bladder, Liver, Kidney, Lung, Ovarian.

Autoimmune disorders - MS, Rheumatoid Arthritis (RA), IBD, SLE.

CNS/Neurodegeneration - Alzheimer's, Parkinson's, Schizophrenia, Depression, Brain tumours, PSP & ALS.

Inflammation - Osteoarthritis (OA), Asthma, COPD, Psoriasis.

Cardiovascular - PAOD, heart muscle, valves, blood vessels and arteries.

Metabolic Disorders - Diabetes (types I and II), Obesity.

Infectious Disease - fungal nails, bloods from various infectious diseases (eg. HIV, HCV), Zika & Dengue.

Blood Disorders - Acute Lymphocytic Leukemia (ALL), Chronic Lymphocytic Leukemia (CLL), Acute Myeloid Leukemia (AML), Chronic Myeloid Leukemia (CML), PV, ET & MF.

Control Samples (non-diseased) - normal adjacent tissues from surgical resection and post mortem tissues; the full FDA and/or EMEA panel.

Body Fluids - Bloods, Plasma, Serum, Bone marrow, Urine, Saliva, Sputum, Synovial fluid, Cerebrospinal fluid (CSF) and Ascites.

We are not restricted by our inventory, we will find what you are looking for banked or find a new source. Alternatively, we can perform a feasibility study and/or project manage a prospective collection for you at one of our collaborating hospitals.





Fresh Human Tissues

Fresh Normal and Cancer Tissues

We provide a range of fresh human tissue samples to our clients in the UK, Europe and USA on a prospective basis. We offer multiple options based on client and source locations and tissues can be shipped in your medium of choice.

We can deliver a range of both normal and cancer samples from surgical resection for use in a range of ex vivo and cell based assays.

In addition, post mortem samples can be provided from organ donors that are not suitable for transplantation.

Fresh bloods and urine samples can also be obtained from healthy and diseased volunteers on a custom prospective collection basis.

Fresh Human Skin

Fresh human skin is available for use in your drug discovery and development applications such as drug permeation studies, skin irritation and toxicology models and for the isolation of primary and stem cells.

We provide surgical excess tissue following cosmetic procedures and can supply discs or sheets of fresh skin from abdomen (full

thickness and dermatomed), breast, scalp, and occasionally from arm, upper and lower eye lid and back.

Post mortem skin can also be obtained from most areas of the body with typical post mortem intervals (PMIs) of 6-8 hours.

Fresh skin samples can be shipped in your medium of choice and are supplied with details of the donors HCV, HBV and HIV status.

| Fresh Tissue | Normal | Cancer |
|--------------|--------|--------|
| Bloods | • | • |
| Urine | • | • |
| Skin | • | |
| Breast | • | • |
| Colon | • | • |
| Kidney | • | • |
| Lung | • | • |
| Bladder | • | • |
| Pancreas | • | • |
| Ovarian | | • |
| Head & Neck | • | • |
| Prostate | | • |
| Brain | • | • |

We have ethical approval to collect psoriatic & atopic dermatitis skin biopsies. We can obtain matched 5 mm biopsies from lesions and non-lesional skin and blood samples from the same donors.



Prospective Collections

If the samples you are looking for are not available banked, then we can carry out a prospective collection for you through our qualified network.

By working with our collaborating hospitals and post mortem sources that comply with IRB/ethics regulations, we can provide “tough” tissues with specific inclusion and exclusion criteria.

From living donors we can provide fresh blood, serum, plasma, urine and fresh surgical excess tissues from both normal and diseased donors. A range of tissues are also available from our post mortem sources on a prospective basis including fresh brain, DRGS and eyes. Please speak to us about your needs.

Feasibility Studies

We carry out feasibility studies to identify collaborating clinicians and clinical groups willing to collect on your behalf. This allows us to determine realistic protocols and associated timescales and provide alternative approaches using different tissues types or experiments when needed.

We can also identify currently banked specialized collections.

Establishing Clinical Collaborations

We can then establish agreements directly between you and the tissue source, depending on your company’s requirements. For prospective collections we can prepare the project plan, recruit collaborating clinicians and secure an agreement with the source, all on your behalf.

Obtaining UK Ethical Approval

For our clients in the UK, we also offer advice on the ethics application process. This includes working to:

- Obtain UK ethical approval on your behalf.
- Prepare realistic protocols.
- Design patient information & consent sheets.

Logistics

We can also set up the framework for tissue delivery direct from the source to your labs. We offer effective chain management solutions, with optimised and tight delivery times. We offer validated ambient and temperature controlled packaging, and manage customs clearance.



FDA / EMEA Panel of Normal Tissues

Pathologically Normal Tissue

We can supply high quality FFPE or frozen normal tissues required for both the FDA and EMEA panels for antibody cross reactivity studies. Slides and TMAs are also available. All samples are ethically obtained with full donor or donor family consent from post mortem and surgical sources. Other species panels also available.

We tailor each panel to suit your requirements in terms of:

- Age range and sex of the donors
- Racial backgrounds (Caucasian, Asian, African American etc)
- Preservation methods (flash frozen in liquid nitrogen, slow freezing, dry ice freezing, OCT embedding, FFPE)
- Number of blocks required per tissue
- Full and partial panels in terms of donor and tissue numbers.

The standard clinical information will include demographic data (age, gender, ethnicity), cause of death, date of procurement and PMI and an H&E slide is provided of every tissue. Additional donor information can be provided on request.

FDA Panel Tissues

| | | |
|-----------------|----------------|-----------------|
| Adrenal Gland | Heart | Prostate |
| Bladder | Kidney | Skin |
| Uterus | Liver | Spinal Cord |
| Breast | Lung | Spleen |
| Cerebellum | Lymph Node | Striated Muscle |
| Cerebral Cortex | Ovary | Testes |
| Colon | Pancreas | Thymus |
| Eye | Parathyroid | Thyroid |
| Fallopian Tube | Periphera Node | Ureter |
| GI Tract | Pituitary | |
| Stomach | Placenta | |

Additional Tissues Required by EMEA

| | |
|-------------------|---------------|
| Periphera I Nerve | Parotid Gland |
| Small Intestine | Tonsil |

Procurement of other normal tissues, such as gallbladder, vas deferens, epididymis, etc. is available upon request.



Freshly Isolated Cells & Primary Cell Lines

We are continually adding to our range of cells isolated from fresh tissue samples and primary cell lines. These can be shipped as live cultures or cryopreserved.

Human Hepatocytes

Hepatocytes are available either fresh or frozen, for growing in suspension or in monolayers, as short (5 to 6 days) or long term cultures (up to 3 weeks). Fresh cells can be shipped in flasks or multiwell plates. All cells are supplied with donor information including age, sex, liver pathology, medical history. We can also supply subcellular fractions: microsomes, S9 fractions (non-induced or induced and cytosols).

Human Keratinocytes

Normal adult keratinocytes are prepared from breast or abdominal skin.

Human Fibroblasts

Our fibroblasts are isolated from abdominal skin, breast skin or scalp samples.

Human Melanocytes

Epidermal melanocytes have been isolated from the skin of healthy donors.

Human Adipocytes & Pre-adipocytes

Subcutaneous adipocytes and pre-adipocytes are available and have been purified from surgical excess normal material. Protocols for culture and differentiation are provided.

Human PBMCs

High quality normal and diseased PBMCs. Highly purified subsets including CD34+ cells, monocytes, NK cells, T-cells and B-cells.

Diseased PBMCs

Normal & Disease specific human cells. These can be shipped as live cultures or cryopreserved. We can also supply subcellular fractions: microsomes, S9 fractions (non-induced or induced and cytosols).

Primary cells

Fresh or frozen PBMCs available from normal and diseased donors (includes autoimmune diseases: RA, SLE, Crohn's, MS). Cryopreserved PBMCs come with age, gender, ethnicity, HLA data or HLA Class I and Class II data.

Human Pancreatic Islets

High quality characterized human pancreatic islets are available for research use. This includes normal human islets and pancreatic islets from type 1 and type 2 diabetic donors.

Induced Pluripotent Stem Cells (iPS)

Conveniently already differentiated and ready to use.

All our human cells have been isolated from donors that are negative for HIV1/2, HCV and HBV infection and certified free of mycoplasmal, bacterial, yeast and fungal contamination. Please contact us for details of available cells in our current stock.





Pre-Trial Validation Support

Samples for the evaluation of specimen collection and processing protocols.

Tissue Solutions understands the fundamental importance of good processing and management of samples to the success of a clinical trial. We can provide access to specific sample sets required for pre-trial validation of biomarker driven clinical trials. We can also deliver samples from specific cohorts for validation of arrays, sample handling and processing protocols to be used as part of a clinical trial.

Biobanking Validation

Biosamples are a precious resource generated in a clinical study and planning for successful biospecimen preservation is a key part of a clinical trial. Tissue Solutions can prospectively collect samples in any format to allow you to validate your internal processing and banking prior to receipt of these irreplaceable samples.

