Leukopaks from disease state human donors

High-quality, high volume, patient-centric leukapheresis products from our extensive network of research-ready study participants

CONFIRMED DISEASE

Understand the patient's condition with demographics, **annotated medical records** and histories

CONSISTENCY

Obtain up to **10 billion PBMCs** fresh or cryopreserved from the same donor

QUALITY

Certificate of analysis documents cell viability, purity, immune cell subtype abundances, and collection data

RECALLABLE DONORS

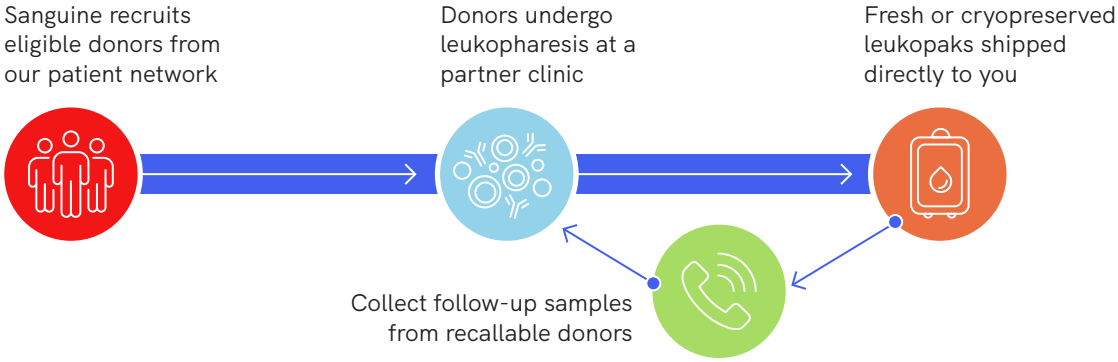
Strong relationships with a diverse, nationwide network of **60,000+ donors**

HLA typing

Clinical annotation

Infectious disease testing

Recallable donors



Apheresis-separated lymphocytes and monocytes (Leukopaks) collected from the same donor provide a reliable and consistent source of peripheral blood mononuclear cells (PBMCs) for biomarker, immunology, autologous, and allogeneic cell therapy research.[1,2] Not only can many therapy programs benefit from up to 10 billion PBMCs present in Leukopaks, but also from donor networks of recallable patients with annotated medical data.

To facilitate translational and clinical research, Sanguine Biosciences offers cryopreserved leukapheresis products for Research Use Only. Leukopaks are collected at qualified apheresis clinics under an IRB-approved protocol. Study participants are selected among our growing nationwide network of 60,000+ research-ready and recallable patients across multiple immune-related diseases.

As the pioneer and leader in patient-centric, prospective, and nationwide human biospecimen procurement, Sanguine understands how streamlining sample accession expedites breakthroughs that benefit both patients and researchers. Our experienced team and patient network participants are committed to facilitating your research and deliver next-generation therapies.

Use Human Leukopaks for:

Assay validation | Process Development | Rare cell identification | Cell & Gene Therapy

818-462-8290 learnmore@sanguinebio.com www.sanguinebio.com

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Prepare for data analysis with our additional sample characterization and processing capabilities, including:

- Human Leukocyte Antigen (HLA) typing
- Percent abundance characterization of immune cell subtypes
- Prospective collection of additional samples from the same patient

Disease states (Others being added, please inquire)	**Systemic Lupus Erythematosus**	**Ulcerative Colitis**	**Celiac Disease**
	Rheumatoid Arthritis	**Crohn's Disease**	**Asthma**
	Multiple Sclerosis	**Atopic Dermatitis**	**HIV**
	Diabetes Mellitus Type I & Type II	**Psoriasis**	**HBV**
Use	Research Use Only (RUO)		
Collection method	Leukapheresis at FDA certified, blood clinic partner sites		
Cell viability measurement	Fluorescent-based cell counting		
Compliance validation	▪ IRB approved protocol and HIPAA compliance ▪ Records tracked via clinical quality management system		
	Fresh	**Cryopreserved**	
Collection size	Full (8–10 billion cells)	Full (8–10 billion cells) Half (4–6 billion cells) Quarter (2–3 billion cells)	
Preservation and delivery	▪ Shipped same day for overnight delivery ▪ Same-day delivery available in select geographies	▪ Same-day cryopreservation in CryoStor CS-10 serum-free media ▪ Controlled-rate freezing with long-term storage in LN2 ▪ Shipped on dry ice overnight	

Example Publications using PBMCs from Sanguine:

Cell

Profiling SARS-CoV-2 HLA-I peptidome reveals T cell epitopes from out-of-frame ORFs
Potential peptide epitopes not captured by current Covid-19 vaccines elicit robust T cell responses in Covid-19 patients.[3]

nature communications

Checkpoint inhibition through small molecule-induced internalization of programmed death-ligand 1
A novel PD-L1 inhibitor stimulated immune cell responses in donor PBMCs from HBV-positive (T cells) and HBV-vaccinated (B cells) patients.[4]

Search our network of 60,000+ study participants

Discuss a study design

[1]Mackensen A et al. (2022) Anti-CD19 CAR T cell therapy for refractory systemic lupus erythematosus. *Nat. Med.* Sep 15. DOI: 10.1038/s41591-022-02017-5.
[2]Rodell CB, Koch PD, Weissleder R. (2019) Screening for new macrophage therapeutics. Theranostics. 9(25): 7714–7729.
[3]Weingarten-Gabbay S et al. (2021) Profiling SARS-CoV-2 HLA-I peptidome reveals T cell epitopes from out-of-frame ORFs. *Cell.* 184:3962–3980.
[4]Park J-J et al. (2021) Checkpoint inhibition through small molecule-induced internalization of programmed death-ligand 1. *Nat. Commun.* 12:1222.

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