

FRESH OSTEOCHONDRAL ALLOGRAFT FREQUENTLY ASKED QUESTIONS

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1. What are Fresh Osteochondral Allografts?

Fresh Osteochondral Allografts are allografts that have mature hyaline cartilage with viable chondrocytes and subchondral bone intended for joint reconstruction procedures to repair articular cartilage and subchondral bone defects. See number 3 below for list of available allografts.

2. How are Fresh Osteochondral Allografts deemed suitable for transplant?

Pre-Process Testing

Medical Suitability Assessment

Tissue is designated as suitable or unsuitable for transplantation in accordance with federal and state regulatory requirements, and as determined by LifeNet Health's Medical Director. LifeNet Health's Donor

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Medical History & Behavioral Risk Assessment questionnaire is comprised of more than 30 types of questions, designed to identify behavioral and medical situations that increase risk of use for clinical implantation. Additionally, LifeNet Health acquires information from the healthcare professionals treating the patient and relevant portions of the donor's medical record, including the autopsy report if applicable/available. A properly administered Risk Assessment, including serologic and microbiologic testing results, ensures that transmission of viral, bacterial, fungal, prion, and other pathogens is a remote risk to any recipient.

Serologic Testing

All donor blood samples used for required infectious disease testing are evaluated and qualified for acceptability regarding the potential for hemodilution. **Qualified donor blood samples are tested for evidence of infectious agents, including Human Immunodeficiency Virus (HIV), Hepatitis B/C, and syphilis.** All required serologic testing is performed by a CLIA certified laboratory, registered with the FDA to perform donor testing. **FDA-licensed or approved donor screening tests are used when available. The donation is accepted or rejected in accordance with federal regulatory requirements.**

Microbiology Testing

Each tissue is swabbed at recovery using a 100% swabbing method (prior to coming into contact with disinfectants). Swabs have been validated to maintain the viability of aerobic, anaerobic, and fungal microorganisms of concern. Samples are individually wrapped, packed with ice and transported to LifeNet Health's CLIA-certified QC Laboratory for testing. Standard microbiologic methods are employed to detect and identify a wide array of microorganisms.

Quality Assurance (QA) Review

QA staff review the donor record in detail to ensure that all required documentation is present, complete, and meets acceptability requirements before being sent for review and final acceptability determination by the Medical Director.

Post-Process Testing

To evaluate transplantable grafts, representative samples of co-processed tissue and processing solutions undergo robust microbiologic testing to evaluate and detect the presence of bacteria and fungi in the post-processed grafts. Test methods are validated and adapted from USP <71> volume 36.

Tissue is released for transplant only if ALL post-process testing is negative, and ALL donor suitability criteria are met*.

- * **If the final Autopsy report is not available, Fresh grafts may be considered for a "Utility Based Release", which requires surgeon signature acknowledgment.**

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3. What Fresh Osteochondral Allografts are available?

ATL80	Ankle Talus, Left	ATR80	Ankle Talus, Right
FCA80	Femoral Hemicondyle, Left Lateral	FCC80	Femoral Hemicondyle, Right Medial
FCB80	Femoral Hemicondyle, Left Medial	FCD80	Femoral Hemicondyle, Right Lateral
FCL80	Whole Femoral Condyle, Left	FCR80	Whole Femoral Condyle, Right
FHL80	Femoral Head, Left	FHR80	Femoral Head, Right
TFL80	Tibial Plateau with Meniscus, Left	TFR80	Tibial Plateau with Meniscus, Right
TDL80	Distal Tibia, Left	TDR80	Distal Tibia, Right
HHL80	Humeral Head, Left	HHR80	Humeral Head, Right
PAL80	Patella bone, Left	PAR80	Patella bone, Right
PCA80	Partial Condyle, Left Lateral	PCC80	Partial Condyle, Right Medial
PCB80	Partial Condyle, Left Medial	PCD80	Partial Condyle, Right Lateral
FTR80	Femoral Trochlea, Right	FTL80	Femoral Trochlea, Left
FTA80	Bi-Compartment, Left Lateral & Trochlea	FTC80	Bi-Compartment, Right Medial & Trochlea
FTB80	Bi-Compartment, Left Medial & Trochlea	FTD80	Bi-Compartment, Right Lateral & Trochlea
RFP10	10 mm Plug	RFP16	16 mm Plug

4. How are Fresh OCA's measured?

During production, the graft's cartilage surface is measured by hand using digital calipers and only measures usable cartilage surface. Arthrex sizers are then held up against the graft and then photographed to demonstrate size.

5. How are these grafts different than those from JRF, MTF & RTI?

	LifeNet Health ¹	JRF ^{2,3}	MTF ⁴	RTI ⁵
Expiration	45 days	28 days	60 days*	45 days
Media	X-VIVO 10 or DMEM	"unique nutrient media"	"NCTC Medium 135, Fetal Calf Serum/BSE free and DMEM"	"nutrient media"
Cell availability	Yes, graft is processed using best practices and is stored in a nutrient rich cell media	"shown to maintain cartilage viability"	N/A*	"cleansed, processed, and preserved to maintain chondrocyte viability"
Antibiotics used	Vancomycin & Gentamicin	"media with antibiotic"	Penicillin G, Streptomycin sulfate & amphotericin B	"proprietary antibiotic soak"
Distributor	Direct & Arthrex	Arthrex	ConMed Linvatec	Direct
Instruments included in allograft fee	Yes, agreement with Arthrex	Yes, agreement with Arthrex	"ACT instrumentation is available"	N/A*
Storage	1-10° C Refrigerated	"refrigerator until transplant"	1-10° C	"refrigerated"
Aseptic Process	Validated culture methods adapted from USP<71>	"processed in aseptic environment"	"Aseptically processed. Passes USP<71> sterility tests."	"Aseptically processed"

*Information is not publically available on company websites or literature.

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6. How do I order a Fresh Osteochondral Allograft?

Special Ordering and processing procedures are as follow:

1. The surgeon, hospital, or sales representative contacts LifeNet Health's Client Services Department by calling 888-847-7831 or 1-757-464-4761. The surgeon or hospital receives, completes, and returns the Fresh Osteochondral Allograft order form along with MRI or Lateral and A/P X-ray films to LifeNet Health. In the European Union (EU), a patient consent form must be on file before the order form and imaging films can be provided. The X-rays must have a magnification marker. If films need to be returned, please notify the Fresh Technical Specialist at the time of ordering. If the request for films is made later, there is no guarantee that the films can be returned.

PLEASE NOTE: *Plugs do not require custom matching, therefore films are not required as part of the order process.*

2. Films and order form can be electronically uploaded or mailed/faxed to:

Email freshorders@lifenethealth.org for a link to upload files
Attn: Technical Specialist / Client Services
501 SW 39th Street • Renton, WA 98057
Phone: (888) 847-7831 • Fax: (425) 981-8986
freshorders@lifenethealth.org

3. When a suitable match is found, the surgeon, hospital, and sales representatives are contacted.
4. The surgeon is provided an offer letter with patient specifications and estimated surgery window, dissection description for review, along with any available photographs of the graft. The offer letter should be signed and returned within 48 hours, or the graft will potentially be offered elsewhere. A Utility-Based Release (UBR) form may also be included in the offer packet if not already on file during the current calendar year. See FAQ #12 for more information about a UBR.
5. Once the form is returned, a quote will be provided and shipping can be arranged.
6. Instrumentation will be provided free of charge by Arthrex, Inc. for Fresh segments only. This does not apply to Fresh plugs.

Key points:

- **Do not schedule the surgery until graft availability is confirmed.**
- Graft release dates are estimated and may change depending on the release process.
- Utilize the LifeNet Health Fresh Osteochondral Graft Order form.
- Please have a billable PO or equivalent ready when the graft is available. We cannot ship the graft without a billable PO.

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- The hospital should obtain insurance approval (if applicable) before placing an order.
- To expedite the release process, the review of donor information is completed by the time the microbial assessment is completed.
- All Fresh Osteochondral Allograft bio-implants are shipped overnight on wet ice in a validated shipper.

7. Can I electronically upload films and order forms? Yes. LifeNet Health now allows files to be uploaded via ShareFile by Citrix.

8. How do I upload a file to ShareFile?

- a. Contact Freshorders@lifenethealth.org to request a link to upload files.
- b. You will receive an email similar to below with a link.

Good morning Amy,

Thank you for your interest in LifeNet Health's Fresh allograft program. Attached you will find our Fresh order form that needs to be submitted with all images for patient matching.

You can submit images online using this link:

<https://lifenethealth.sharefile.com/r-r3df8ec195004681a>



The attached FAQ has instructions for uploading, please refer to question #8.

You can also mail images to:

LifeNet Health
Fresh Allografts
501 SW 39th Street
Renton, WA 98057

If you have any questions please call 1-888-847-7831 or email freshorders@lifenethealth.org

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- c. Click on link to open ShareFile, fill in the required fields, and click continue.



To continue, please enter your
information below.

Email*

 This field is required.

First Name*

 This field is required.

Last Name*

 This field is required.

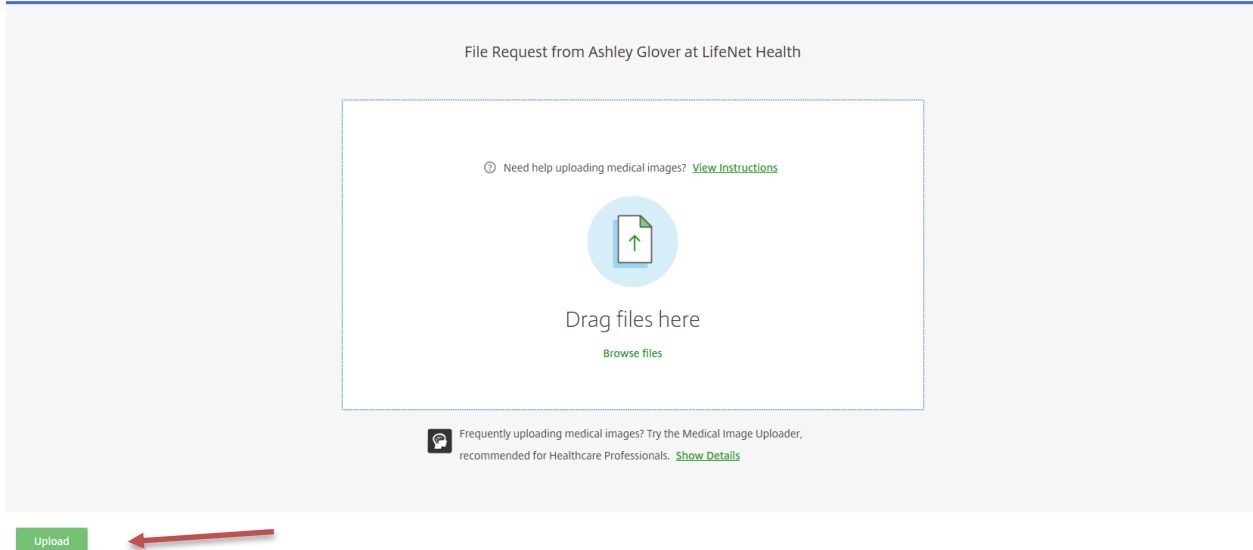
Company

Remember Me

Your information will be used for internal tracking
purposes only. It will not be shared with third parties.

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d. For easiest uploading, create a zip file of all images or DICOM files and then simply drag and drop your dicom (.dcm for imaging files) or .pdf files (order form) into the “Drag files here” box. To finish click the green “Upload” button. You can also click on “Browse files” to find desired files to be uploaded and once listed in the box, click the green upload button. Click on “View instructions” for additional help. NOTE: If you frequently upload images, especially from a CD, you may want to utilize the Medical Image Uploader. Click on “Show Details link below box to download the software.



9. What if I have a MAC? Can I still upload?

Yes. Follow the same steps above to upload files using a MAC.

NOTE: Using the “Browse files” option may perform better for uploading on a MAC.

10. My company’s firewall will not allow me access. What now?

You can still provide a CD with the images to your local Bio-Implant Specialist or Arthrex Technical Consultant. They will have access and can upload the file for you. You may also still opt to mail the CD to our office at the address listed in #2 above.

11. What is included in the offer letter packet?

An offer letter with patient specifications and estimated surgery window, dissection description for review, along with any available photographs of graft that include Arthrex sizers for reference. A Utility-

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Based Release (UBR) form may also be included if there is not one on file for the current calendar year. The offer letter should be signed and returned within 48 hours.

12. What is a Utility-Based Release (UBR)?

The UBR is a process allowing release prior to having all information normally required available. In nearly all UBR cases, the missing element is the final autopsy information. Therefore a form is utilized showing all the relevant donor information, testing performed and states what donor information may still be missing in order for the quick release for a Fresh osteochondral allograft.

13. What is needed to ship a Fresh graft?

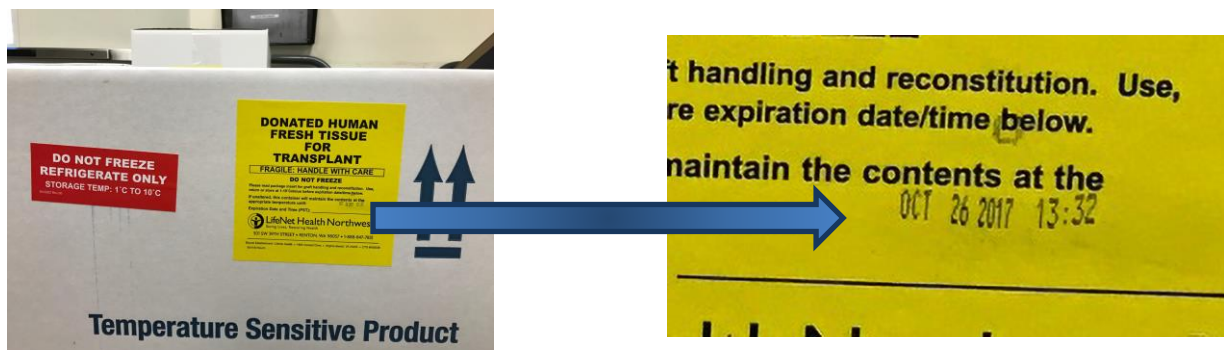
In order for a fresh graft to ship, the signed Offer Letter must be returned and a valid UBR is on file. Additionally, a billable purchase order (PO) number (or equivalent) and case date must be provided prior to shipment.

14. How is a Fresh graft shipped?

All Fresh Osteochondral Allograft bio-implants are shipped on wet ice in a validated shipper. Any Fresh OCA shipped by special courier may incur additional charges.

15. How long is the shipper valid?

All Fresh Osteochondral Allograft bio-implants are shipped in a validated shipper. Please refer to label/seal on shipper for the date and time of shipper expiration. See example below.



16. Are Fresh Osteochondral Allografts returnable?

Due to their short expiration period, Fresh grafts are non-returnable. Please refer to the LifeNet Health Return Policy or contact your LifeNet Health Client Services Representative.

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17. What are the storage requirements?

Fresh Osteochondral Allografts must be stored between **1-10° C, refrigerated**. **DO NOT FREEZE**.¹

18. What if a Fresh Osteochondral Allograft is accidentally placed in the freezer?

Freezing a Fresh Osteochondral Allograft has a negative effect on the viability of chondrocytes and may possibly affect general biomechanical properties of the cartilage. Fresh Osteochondral Allografts should NOT be frozen and use after accidental freezing is not recommended.

19. What is the storage media?

LifeNet Health's Fresh Osteochondral Allografts are stored in either antibiotics containing X-VIVO™ 10 media or Dulbecco's Modified Eagle's Medium (DMEM). X-VIVO 10 media and DMEM are both chemically defined, serum-free, xeno-free cell culture media that can provide a nutritionally complete and balanced environment for the in vitro culture and maintenance of cells including chondrocytes. Either media is used to provide nutritionally complete and balanced environments for a variety of cells, such as chondrocytes. X-VIVO™ 10 media and DMEM are manufactured under current good manufacturing practices (cGMP) at cGMP-compliant facilities in the United States and Europe. These facilities are registered with the FDA as a medical device manufacturer and are certified to ISO 13485 standards.^{6,11}

20. Are there any concerns using Fresh Osteochondral Allografts, since they do not have a Sterility Assurance Level (SAL) of 10⁻⁶?

LifeNet Health's quality controls and processing techniques meet the requirements set forth by the American Association of Tissue Banks (AATB) and the Federal Drug Administration (FDA). Our quality processes, including donor screening, serology testing, microbiological testing, and aseptic processing, substantially reduce risk, but do not completely eliminate the possibility of infections associated with allograft implantation. Our Fresh Osteochondral Allografts are aseptically processed, and use validated testing methods adapted from USP<71>. All LifeNet Health Fresh Osteochondral Allografts undergo microbiologic testing to evaluate the possible presence of bacteria and fungi in the transplantable graft. Fresh Osteochondral Allografts must be culture negative at the time of final packaging to be released into inventory.

21. Is there any potential for allergic reactions due to use of antibiotics or other reagents?

Yes, LifeNet Health's Fresh Osteochondral Allografts may contain residuals of antibiotics (Gentamicin and Vancomycin). The graft is stored in either DMEM or X-VIVO media. Caution should be exercised if the patient has a known sensitivity to any of these antibiotics and/or reagents. Please refer to the instructions for use included in the bio-implant packaging.

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22. Should Fresh Osteochondral Allografts be cultured for microbial contamination prior to implantation?

Although we realize this procedure may be standard policy at some surgical centers, LifeNet Health leaves the decision for pre-implantation culturing to the surgeons utilizing the graft, based on their experience and recommendations from their specialty societies. The interpretation of positive pre-implantation cultures must differentiate between contamination of the tissue, contaminants introduced in the OR environment, and false positives¹. LifeNet Health allograft tissue has been recovered, processed, stored, and distributed according to standards set forth by the American Association of Tissue Banks (AATB)⁷ and the Federal Government^{8,9}. LifeNet Health's Fresh Osteochondral Allograft tissues are culture negative at the time of release for implantation.

23. Does blood type matter for Fresh Osteochondral Allografts?

No. Cartilage is avascular and has been shown to have little to no immune response. The bone segment used in osteochondral transplant procedures is usually trimmed down to the minimal amount needed by the implanting surgeon. Additionally, the surgeon often performs additional graft lavage to remove bone marrow and lipids prior to implantation that minimizes the potential presences of immunogenic cells and proteins. After several months, many studies have shown that the bony segment is being remodeled and replaced with the host tissue¹⁰. It is the decision of the implanting physician to determine graft suitability.

References

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6. Lonza Culture Media Database. X-VIVO. https://bioscience.lonza.com/lonza_bs/US/en/download/product/asset/30661 and <https://www.lonza.com/about-lonza/global-citizenship/quality/certifications.aspx> (retrieved on September 21, 2018)
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