



## INSTRUCTIONS FOR USE



### OFM TUBING

### FOR LABORATORY USE



Instructions for product type:

OFM-PP2-XX-LB

OFM-PS3-XX

OFM-PL3-XX

OFM-PL3-XX-LB

OFM-T1-XX-LB

OFM-T2-XX-LB



**READ** Instructions for use before using the product! **ALWAYS** follow the warnings, cautions, and notes throughout this document. If you have questions regarding the safe or correct use of the product, please contact **your distributor**.

This document is available via download link. If required, a paper version can be requested from the distributor.

## 1 Intended Use

The OFM Tubing is used to operate OFM probes in tissue during preclinical studies / laboratory use.

**The investigator is responsible for the specific use of the products and compliance with all national regulations regarding the use of laboratory animals.**

For this purpose, a physiologically compatible liquid ('perfusate') is pumped out of the OFM Perfusate Bag through the OFM Catheter at a very low flow rate (0.1-10  $\mu\text{l}/\text{min}$ ) ('microperfusion'). Due to the open and membrane-free exchange surface, the perfusate can absorb practically any substances in the surrounding environment.

### CAUTION



**DO NOT** use on humans! This OFM Tubing has **NOT** been approved for use on humans!

**USE** OFM Tubing on laboratory animals or ex-vivo setups **ONLY**.

**DO NOT** use OFM Tubing on household pets and other non-laboratory animals.

**DO NOT** use inflammable fluids or any other dangerous liquid (e.g. acids, alkaline solutions, solvents, detergents, etc.) or hot fluids ( $>45^{\circ}\text{C}$ ) as perfusate! These liquids could damage the OFM Tubing.

OFM Tubing are available as:

- **Push-Pull Tubing** OFM-PP2-XX(-LB)
  - Combined Push-Pull Tubing for 1 OFM probe
  - One Luer for connection to OFM Bag (push side)
    - Predefined lengths for different use cases
    - Universal length of 1m for universal use, can be cut individually
- **dOFM 3-Channel Push Tubing** OFM-PS3-XX
  - Luer lock pre-mounted for use with OFM Perfusate Bag
  - For connection from OFM Perfusate Bag to pump head (push side)
  - For up to 3 OFM probes
- **dOFM 3-Channel Pull Tubing** OFM-PL3-XX(-LB)
  - For connection from OFM probe to sample collection (pull side)
  - For up to 3 OFM probes
  - Low-Bind version available
- **Push-Pull Tubing** OFM-T1-XX-LB
  - Low-Bind Tubing 0.25mm
- **Push-Pull Tubing** OFM-T2-XX-LB
  - Low-Bind Tubing 0.13mm

XX - stands for different lengths and diameters. For more details, refer to price list.

LB - stands for OFM Tubing with low bind properties.

All OFM Tubing are Gamma-irradiated.



Figure 1: OFM-PP2-XX(-LB)  
Combined 1-Channel Push-Pull  
Tubing (predefined or universal  
length)



Figure 2: OFM-PS3-XX  
3-Channel Push Tubing



Figure 3: OFM-PL3-XX(-LB)  
3-Channel Pull Tubing



Figure 4: OFM-T1-XX-LB  
Push-Pull Tubing 0.25mm



Figure 5: OFM-T2-XX-LB  
Push-Pull Tubing 0.13mm

## 2 Directions for Use

### 2.1 Preparing OFM Tubing, OFM Bag und Microperfusion-Pump

This is a general instruction suitable for most OFM Tubing, for further details refer to the corresponding specific instructions for use:

## 2.2 Connecting up to 3 Linear OFM Probes to Microperfusion-Pump

Connect and operate Linear OFM Probe as follows (Figure 6):

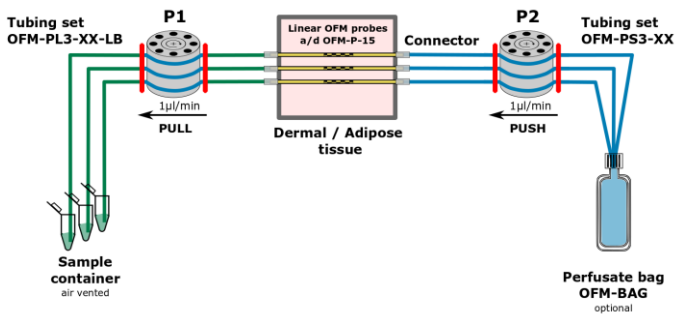


Figure 6: 3-Channel Push-Pull-Sample Mode of Linear OFM Probes using Microperfusion-Pump

1. Remove the cover of the pump head.
2. Unpack Push OFM Tubing (OFM-PS3-XX) and OFM Perfusate Bag (OFM-BAG).
3. Connect the Luer of the Push OFM Tubing to the OFM Perfusate Bag.
4. Fill OFM Perfusate Bag with perfusate using a syringe and remove any air bubbles.  
For more details, refer to the instructions for use of OFM Perfusate Bag.
5. Squeeze the OFM Perfusate Bag to prefill the Push OFM Tubing.
6. Place Push OFM Tubing in pump head P2 and place OFM Perfusate Bag in the right storage compartment, according to the instructions for use of the OFM Microperfusion Pump.
7. Unpack Pull OFM Tubing (OFM-PL3-XX or OFM-PL3-XX-LB).
8. Insert Pull OFM Tubing in pump head P1.
9. Implant Linear OFM PROBES according to the specific instructions for use or watch [video](#).
10. Connect inlets of the Linear OFM PROBES to the individual Push OFM Tubing (OFM-PS3-XX) using connectors. To keep the order, channel 1 to 3 are marked with 1 to 3 dots.
11. Flush inflows (e.g. 5-10µl/min) while slowly removing the stainless steel guide wires.
12. Connect the individual Pull OFM Tubing to the outlets of the LINEAR OFM PROBES using connectors. To keep the order, channel 1 to 3 are marked with 1 to 3 dots.
13. Attach air vented sample containers to the outflow of the Pull OFM Tubing.
14. Flush whole system (e.g. 5-10µl/min for 5 minutes) until air bubbles are fully removed. Afterwards switch to the desired sampling flow rate (e.g. 1µl/min).
15. Apply strain relief to the OFM Tubing to avoid unintentional slipping or snagging.
16. Now the OFM system is ready for sampling.
17. Do not reattach cover of the pump heads to avoid jamming of the OFM Tubing between pump and cover.

## 2.3 Connecting the cOFM Probe to Microperfusion-Pump

cOFM Probe can be operated using Microperfusion-Pump (Figure 7) or syringes (Figure 8):

Connect and operate cOFM Probe as follows:

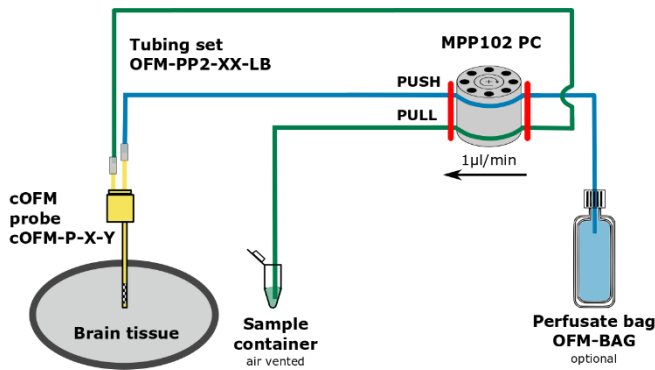


Figure 7: 1-Channel Push-Pull-Sample Mode of concentric cOFM Probe using Microperfusion-Pump

Setup according to Figure 7:

1. Remove the cover of the pump head.
2. Unpack OFM Tubing (OFM-PP2-XX-LB) and OFM Perfusate Bag (OFM-BAG).
3. Connect the Luer of the OFM Tubing with the filled OFM Perfusate Bag.
4. Fill OFM Perfusate Bag with perfusate using a syringe and remove air bubbles. For more details, refer to the instructions for use of OFM Perfusate Bag.
5. Connect the Push channel to the inlet of the Sampling Insert.
6. Squeeze the OFM Perfusate Bag to prefill the Push OFM Tubing.
7. Place OFM Tubing in empty pump head P1 or P2 and place OFM Perfusate Bag in the right storage compartment, according to the instructions for use of the OFM Microperfusion Pump.
8. Connect outlet of the Sampling Insert to the Pull OFM Tubing as well as to an air vented sample container.
9. Alternatively, optional Autosampler plus an Autosampler Needle Insert (both not shown in Figure 8) can be used.
10. Flush all OFM Tubing of the Sampling Insert with a higher flow rate, e.g.  $5\mu\text{l}/\text{min}$ .
11. Replace the Healing Dummy with the Sampling Insert. For more details, refer to the manual of the CONCENTRIC OFM Probe.
12. Perform a run-in phase at sampling flow rate for one hour, before starting sampling.
13. Apply strain relief to the tubing to avoid unintentional slipping or snagging.

## 2.4 Connecting the cOFM Probe to Syringe Pumps

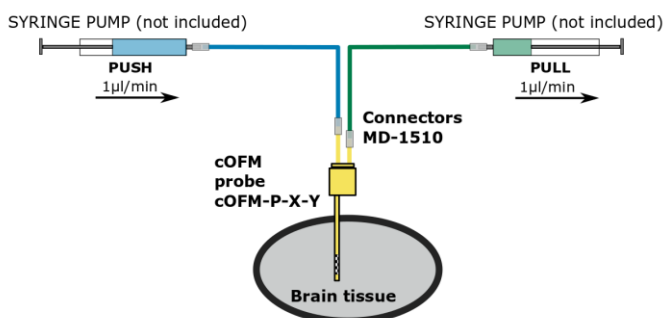


Figure 8: 1-Channel Push-Pull-Sample Mode of concentric cOFM Probe using syringe pumps.

Setup according to Figure 8:

1. Connect the Push channel (OFM-T1-100-LB or OFM-T2-100-LB) to the inlet of the Sampling Insert and the PUSH syringe mounted within a syringe pump using connectors (MD-1510).
2. Connect outlet of the Sampling Insert to the Pull channel (OFM-T1-100-LB or OFM-T2-100-LB) and the PULL syringe mounted within a syringe pump or an optional fraction collector (not shown here) using connectors (MD-1510).
3. Flush all tubing of the Sampling Insert with a higher flow rate, e.g. 5µl/min.
4. Replace the Healing Dummy with the Sampling Insert. For more details, refer to the manual of the cOFM Probe.
5. Perform a run-in phase at sampling flow rate for one hour before starting sampling.
6. Apply strain relief to the tubing to avoid unintentional slipping or snagging.

## 2.5 Removing OFM Tubing

1. Stop Pump(s).
2. Remove the strain relief.
3. Disconnect OFM Tubing.



### **BIOHAZARD**

**Used and removed OFM Tubing are biohazardous and must be disposed accordingly!**

## 3 Combination with Other Products

For optimal performance, operate the OFM Tubing with manufacturer-approved accessories like:

- Microperfusion-Pump MPP102 PC
- Linear a/d OFM Probe (preclinical)
- Concentric cOFM Probe (preclinical)
- OFM Perfusate Bag (preclinical)



### **CAUTION**

When using above-listed products with the OFM Tubing, ALWAYS observe the Instructions for Use of the respective product!



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