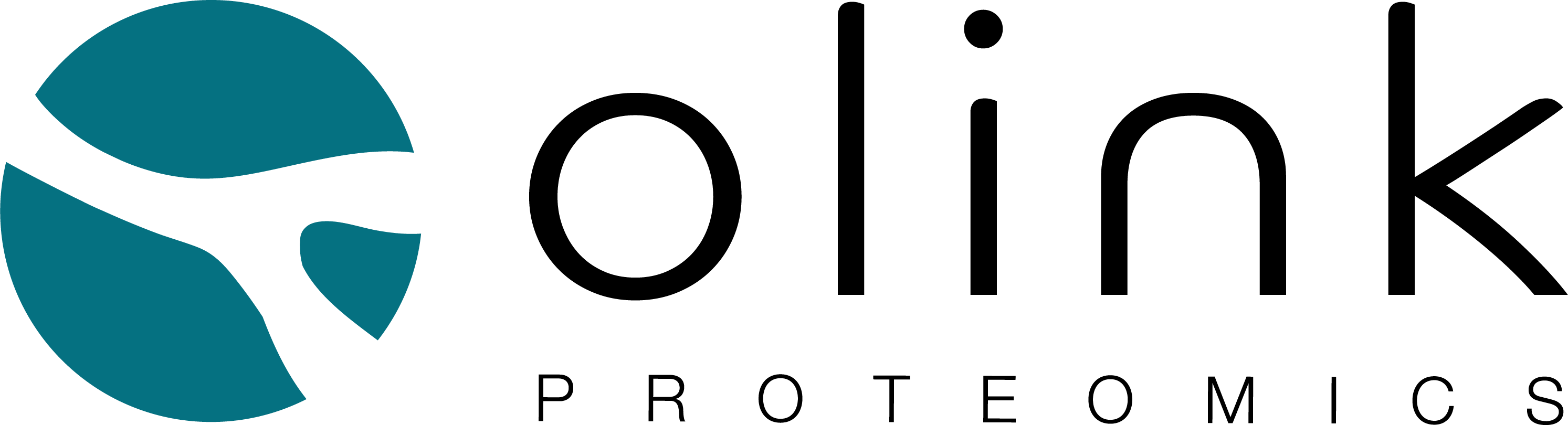
Certificate of Analysis Olink Proteomics



**PROJECT NAME** 20190499\_20190501\_Heckbert\_Bertoni

**DELIVERY DATE** 9/6/2019

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[http://www.olink.com](http://www.olink.com/)

|  |  |  |  |
| --- | --- | --- | --- |
| **1. PROJECT INFORMATION**  **Panel name** | **No. of Samples** | **No. of Plates** | **Normalization Method** |
| Olink CARDIOVASCULAR III | 3156 | 36 | Intensity Normalized |
| **1.1 Sample type**  EDTA Plasma |  |  |  |

# 2. QUALITY CONTROL

Four internal controls are added to each sample to monitor the quality of assay performance, as well as the quality of individual samples. The quality control (QC) is performed in two steps:

1. Each sample plate is evaluated on the standard deviation of the internal controls. This should be below 0.2 NPX. Only data from sample plate that pass this quality control will be reported.
2. The quality of each sample is assessed by evaluating the deviation from the median value of the controls for each individual sample. Samples that deviate less than 0.3 NPX from the median pass the quality control.

Data from all samples is included in the data output file. Samples that did not pass the QC are indicated in columns named "QC Warning". Data points from samples that do not pass QC should be treated with caution. [See 4]

# Summary of Quality Control

## Panel name

**No. of samples that passed QC / Tot no. of samples**

**Passed samples (%)**

Olink CARDIOVASCULAR III 3141 / 3156 100

# Intra- and Inter-Assay Coefficient of Variance (%CV)

Intra and inter CVs are based on control samples (pooled plasma samples) included on each plate. Calculations are made using linear NPX-values. The number of assays with CVs within defined intervals are presented.

# 2.2.1 Average %CV

## Panel name

**Intra-Assay %CV Reference intra CV <15%**

**Inter-Assay %CV Reference inter CV <25%**

Olink CARDIOVASCULAR III 7 15

|  |  |  |
| --- | --- | --- |
| **2.2.2 Intra-Assay %CV Distribution** | **No. of proteins with %CV within defined intervals** |  |
| **Panel name <5%** | **5-10% 10-15%** | **>15%** |
| Olink CARDIOVASCULAR III 6 | 85 1 | 0 |
| **2.2.3 Inter-Assay %CV Distribution** |  |  |
| **Panel name <10%** | **No. of proteins with %CV within defined intervals**  **10-20% 20-30%** | **>30%** |
| Olink CARDIOVASCULAR III 1 | 83 2 | 6 |

# PROTEIN DETECTION RESULTS

* 1. **Number of proteins detected in >75% of the samples**

## Panel name

**No. of detected proteins / Tot no. of proteins**

**Detected proteins (%)**

**Expected detectability in EDTA plasma\* (%)**

Olink CARDIOVASCULAR III 92 / 92 100 >90

\*The expected detectability is based on EDTA plasma from healthy donors. These values are intended as guidelines only and protein levels may vary depending on different pathological conditions, sample matrices, or sample preparation methods.

# Data output

Data is presented as normalized protein expression (NPX) values, Olink Proteomics’ arbitrary unit on log2 scale. [See 4]

The NPX values are presented in a separate data file. Data points for samples that did not pass QC are written in red text. Data values for measurements below limit of detection (LOD) are reported for all samples. Cells containing data values below LOD are indicated with a pink background. [See 4]

# FURTHER INFORMATION

Collection of direct links to pages containing important information relating to Olink data generation and processing, as well as additional support content:

[https://www.olink.com/key-links/](http://www.olink.com/key-links/)

# SAMPLES THAT DID NOT PASS QC

**Sample ID**

**Olink CARDIOVASCULAR III**

16 x

2031 x

2119 x

# 5.1 Observed deviations

Data for these samples/assays are set to "No data" in the results output file.

|  |  |  |
| --- | --- | --- |
| **Sample** | **Plate** | **Reason** |
| 484 | 20190499-006\_SP190442\_CVDIII | Sample Failed |
| 862 | 20190499-010\_SP190446\_CVDIII | Sample Failed |
| 1009 | 20190499-012\_SP190448\_CVDIII | Sample Failed |
| 1339 | 20190499-015\_SP190451\_CVDIII | Sample Failed |
| 1703 | 20190499-020\_SP190456\_CVDIII | No Sample in Source Plate |
| 1868 | 20190499-021\_SP190457\_CVDIII | Sample Failed |
| 1854 | 20190499-021\_SP190457\_CVDIII | No Volume in Source Plate |
| 1986 | 20190499-023\_SP190459\_CVDIII | Sample Failed |
| 2459 | 20190499-028\_SP190464\_CVDIII | Sample Failed |
| 2823 | 20190499-032\_SP190468\_CVDIII | Sample Failed |
| 2883 | 20190499-033\_SP190469\_CVDIII | No Sample in Source Plate |
| 2907 | 20190499-033\_SP190469\_CVDIII | No Sample in Source Plate |

|  |  |  |
| --- | --- | --- |
| **Datapoint** | **Plate** | **Reason** |
| 8 / FAS | 20190499-001\_SP190437\_CVDIII | Datapoint failed |

**MESA Exam 6 Ancillary Data Set Variable Guide**

O-link Proteomics: Cardiovascular III (v.6112)

|  |  |
| --- | --- |
| **Data Set name :** | MESAe6\_Cardiovascular3\_20191009 |
|  |  |
| **Atrial Fibrillation Study** |  |
| Principal Investigator : | Susan Heckbert |
| Contact Information : | [heckbert@uw.edu](mailto:heckbert@uw.edu) |
|  |  |
| **Early Heart Failure Study** |  |
| Principal Investigator : | Alain Bertoni |
| Contact Information : | [abertoni@wakehealth.edu](mailto:abertoni@wakehealth.edu) |

| **Order** | **Variable** | **Variable Description** | **Uniprotein ID** | **O-Link ID** | **Value Labels** |
| --- | --- | --- | --- | --- | --- |
| 1 | idno | MESA Participant ID | - | - |  |
| 2 | sample\_id | O-Link Sample ID | - | - |  |
| 3 | qc\_warning\_6 | QC Warning | - | - | 1 = Pass , 2 = Warning |
| 4 | qc\_warningtxt\_6 | QC Warning Details | - | - |  |
| 5 | tnfrsf14\_6 | TNFRSF14 | [Q92956](https://www.uniprot.org/uniprot/Q92956) | OID00563 |  |
| 6 | ldl\_receptor\_6 | LDL receptor | [P01130](https://www.uniprot.org/uniprot/P01130) | OID00564 |  |
| 7 | itgb2\_6 | ITGB2 | [P05107](https://www.uniprot.org/uniprot/P05107) | OID00565 |  |
| 8 | il17ra\_6 | IL-17RA | [Q96F46](https://www.uniprot.org/uniprot/Q96F46) | OID00566 |  |
| 9 | tnfr2\_6 | TNF-R2 | [P20333](https://www.uniprot.org/uniprot/P20333) | OID00567 |  |
| 10 | mmp9\_6 | MMP-9 | [P14780](https://www.uniprot.org/uniprot/P14780) | OID00568 |  |
| 11 | ephb4\_6 | EPHB4 | [P54760](https://www.uniprot.org/uniprot/P54760) | OID00569 |  |
| 12 | il2ra\_6 | IL2-RA | [P01589](https://www.uniprot.org/uniprot/P01589) | OID00570 |  |
| 13 | opg\_6 | OPG | [O00300](https://www.uniprot.org/uniprot/O00300) | OID00571 |  |
| 14 | alcam\_6 | ALCAM | [Q13740](https://www.uniprot.org/uniprot/Q13740) | OID00572 |  |
| 15 | tff3\_6 | TFF3 | [Q07654](https://www.uniprot.org/uniprot/Q07654) | OID00573 |  |
| 16 | selp\_6 | SELP | [P16109](https://www.uniprot.org/uniprot/P16109) | OID00574 |  |
| 17 | cstb\_6 | CSTB | [P04080](https://www.uniprot.org/uniprot/P04080) | OID00575 |  |
| 18 | mcp1\_6 | MCP-1 | [P13500](https://www.uniprot.org/uniprot/P13500) | OID00576 |  |
| 19 | cd163\_6 | CD163 | [Q86VB7](https://www.uniprot.org/uniprot/Q86VB7) | OID00577 |  |
| 20 | gal3\_6 | Gal-3 | [P17931](https://www.uniprot.org/uniprot/P17931) | OID00578 |  |
| 21 | grn\_6 | GRN | [P28799](https://www.uniprot.org/uniprot/P28799) | OID00579 |  |
| 22 | ntprobnp\_6 | NT-proBNP | NA | OID00131 |  |
| 23 | blm\_hydrolase\_6 | BLM hydrolase | [Q13867](https://www.uniprot.org/uniprot/Q13867) | OID00581 |  |
| 24 | plc\_6 | PLC | [P98160](https://www.uniprot.org/uniprot/P98160) | OID00582 |  |
| 25 | ltbr\_6 | LTBR | [P36941](https://www.uniprot.org/uniprot/P36941) | OID00583 |  |
| 26 | notch\_3\_6 | Notch 3 | [Q9UM47](https://www.uniprot.org/uniprot/Q9UM47) | OID00584 |  |
| 27 | timp4\_6 | TIMP4 | [Q99727](https://www.uniprot.org/uniprot/Q99727) | OID00585 |  |
| 28 | cntn1\_6 | CNTN1 | [Q12860](https://www.uniprot.org/uniprot/Q12860) | OID00586 |  |
| 29 | cdh5\_6 | CDH5 | [P33151](https://www.uniprot.org/uniprot/P33151) | OID00587 |  |
| 30 | tlt2\_6 | TLT-2 | [Q5T2D2](https://www.uniprot.org/uniprot/Q5T2D2) | OID00588 |  |
| 31 | fabp4\_6 | FABP4 | [P15090](https://www.uniprot.org/uniprot/P15090) | OID00589 |  |
| 32 | tfpi\_6 | TFPI | [P10646](https://www.uniprot.org/uniprot/P10646) | OID00590 |  |
| 33 | pai\_6 | PAI | [P05121](https://www.uniprot.org/uniprot/P05121) | OID00591 |  |
| 34 | ccl24\_6 | CCL24 | [O00175](https://www.uniprot.org/uniprot/O00175) | OID00592 |  |
| 35 | tr\_6 | TR | [P02786](https://www.uniprot.org/uniprot/P02786) | OID00593 |  |
| 36 | tnfrsf10c\_6 | TNFRSF10C | [O14798](https://www.uniprot.org/uniprot/O14798) | OID00594 |  |
| 37 | gdf15\_6 | GDF-15 | [Q99988](https://www.uniprot.org/uniprot/Q99988) | OID00595 |  |
| 38 | sele\_6 | SELE | [P16581](https://www.uniprot.org/uniprot/P16581) | OID00596 |  |
| 39 | azu1\_6 | AZU1 | [P20160](https://www.uniprot.org/uniprot/P20160) | OID00597 |  |
| 40 | dlk1\_6 | DLK-1 | [P80370](https://www.uniprot.org/uniprot/P80370) | OID00598 |  |
| 41 | spon1\_6 | SPON1 | [Q9HCB6](https://www.uniprot.org/uniprot/Q9HCB6) | OID00599 |  |
| 42 | mpo\_6 | MPO | [P05164](https://www.uniprot.org/uniprot/P05164) | OID00600 |  |
| 43 | cxcl16\_6 | CXCL16 | [Q9H2A7](https://www.uniprot.org/uniprot/Q9H2A7) | OID00601 |  |
| 44 | il6ra\_6 | IL-6RA | [P08887](https://www.uniprot.org/uniprot/P08887) | OID00602 |  |
| 45 | retn\_6 | RETN | [Q9HD89](https://www.uniprot.org/uniprot/Q9HD89) | OID00603 |  |
| 46 | igfbp1\_6 | IGFBP-1 | [P08833](https://www.uniprot.org/uniprot/P08833) | OID00604 |  |
| 47 | chit1\_6 | CHIT1 | [Q13231](https://www.uniprot.org/uniprot/Q13231) | OID00605 |  |
| 48 | trap\_6 | TR-AP | [P13686](https://www.uniprot.org/uniprot/P13686) | OID00606 |  |
| 49 | gp6\_6 | GP6 | [Q9HCN6](https://www.uniprot.org/uniprot/Q9HCN6) | OID05026 |  |
| 50 | pspd\_6 | PSP-D | [P35247](https://www.uniprot.org/uniprot/P35247) | OID00608 |  |
| 51 | pi3\_6 | PI3 | [P19957](https://www.uniprot.org/uniprot/P19957) | OID00609 |  |
| 52 | epcam\_6 | Ep-CAM | [P16422](https://www.uniprot.org/uniprot/P16422) | OID00610 |  |
| 53 | apn\_6 | AP-N | [P15144](https://www.uniprot.org/uniprot/P15144) | OID00611 |  |
| 54 | axl\_6 | AXL | [P30530](https://www.uniprot.org/uniprot/P30530) | OID00612 |  |
| 55 | il1rt1\_6 | IL-1RT1 | [P14778](https://www.uniprot.org/uniprot/P14778) | OID00613 |  |
| 56 | mmp2\_6 | MMP-2 | [P08253](https://www.uniprot.org/uniprot/P08253) | OID00614 |  |
| 57 | fas\_6 | FAS | [P25445](https://www.uniprot.org/uniprot/P25445) | OID00615 |  |
| 58 | mb\_6 | MB | [P02144](https://www.uniprot.org/uniprot/P02144) | OID00616 |  |
| 59 | tnfsf13b\_6 | TNFSF13B | [Q9Y275](https://www.uniprot.org/uniprot/Q9Y275) | OID00617 |  |
| 60 | prtn3\_6 | PRTN3 | [P24158](https://www.uniprot.org/uniprot/P24158) | OID00618 |  |
| 61 | pcsk9\_6 | PCSK9 | [Q8NBP7](https://www.uniprot.org/uniprot/Q8NBP7) | OID00619 |  |
| 62 | upar\_6 | U-PAR | [Q03405](https://www.uniprot.org/uniprot/Q03405) | OID00620 |  |
| 63 | opn\_6 | OPN | [P10451](https://www.uniprot.org/uniprot/P10451) | OID00621 |  |
| 64 | ctsd\_6 | CTSD | [P07339](https://www.uniprot.org/uniprot/P07339) | OID00622 |  |
| 65 | pglyrp1\_6 | PGLYRP1 | [O75594](https://www.uniprot.org/uniprot/O75594) | OID00623 |  |
| 66 | cpa1\_6 | CPA1 | [P15085](https://www.uniprot.org/uniprot/P15085) | OID00624 |  |
| 67 | jama\_6 | JAM-A | [Q9Y624](https://www.uniprot.org/uniprot/Q9Y624) | OID00625 |  |
| 68 | gal4\_6 | Gal-4 | [P56470](https://www.uniprot.org/uniprot/P56470) | OID00626 |  |
| 69 | il1rt2\_6 | IL-1RT2 | [P27930](https://www.uniprot.org/uniprot/P27930) | OID00627 |  |
| 70 | shps1\_6 | SHPS-1 | [P78324](https://www.uniprot.org/uniprot/P78324) | OID00628 |  |
| 71 | ccl15\_6 | CCL15 | [Q16663](https://www.uniprot.org/uniprot/Q16663) | OID00629 |  |
| 72 | casp3\_6 | CASP-3 | [P42574](https://www.uniprot.org/uniprot/P42574) | OID00630 |  |
| 73 | upa\_6 | uPA | [P00749](https://www.uniprot.org/uniprot/P00749) | OID00631 |  |
| 74 | cpb1\_6 | CPB1 | [P15086](https://www.uniprot.org/uniprot/P15086) | OID00632 |  |
| 75 | chi3l1\_6 | CHI3L1 | [P36222](https://www.uniprot.org/uniprot/P36222) | OID00633 |  |
| 76 | st2\_6 | ST2 | [Q01638](https://www.uniprot.org/uniprot/Q01638) | OID00634 |  |
| 77 | tpa\_6 | t-PA | [P00750](https://www.uniprot.org/uniprot/P00750) | OID00635 |  |
| 78 | scgb3a2\_6 | SCGB3A2 | [Q96PL1](https://www.uniprot.org/uniprot/Q96PL1) | OID00636 |  |
| 79 | egfr\_6 | EGFR | [P00533](https://www.uniprot.org/uniprot/P00533) | OID00637 |  |
| 80 | igfbp7\_6 | IGFBP-7 | [Q16270](https://www.uniprot.org/uniprot/Q16270) | OID00638 |  |
| 81 | cd93\_6 | CD93 | [Q9NPY3](https://www.uniprot.org/uniprot/Q9NPY3) | OID00639 |  |
| 82 | il18bp\_6 | IL-18BP | [O95998](https://www.uniprot.org/uniprot/O95998) | OID00640 |  |
| 83 | col1a1\_6 | COL1A1 | [P02452](https://www.uniprot.org/uniprot/P02452) | OID00641 |  |
| 84 | pon3\_6 | PON3 | [Q15166](https://www.uniprot.org/uniprot/Q15166) | OID00642 |  |
| 85 | ctsz\_6 | CTSZ | [Q9UBR2](https://www.uniprot.org/uniprot/Q9UBR2) | OID00643 |  |
| 86 | mmp3\_6 | MMP-3 | [P08254](https://www.uniprot.org/uniprot/P08254) | OID00644 |  |
| 87 | rarres2\_6 | RARRES2 | [Q99969](https://www.uniprot.org/uniprot/Q99969) | OID00645 |  |
| 88 | icam2\_6 | ICAM-2 | [P13598](https://www.uniprot.org/uniprot/P13598) | OID00646 |  |
| 89 | klk6\_6 | KLK6 | [Q92876](https://www.uniprot.org/uniprot/Q92876) | OID00647 |  |
| 90 | pdgf\_subunit\_a\_6 | PDGF subunit A | [P04085](https://www.uniprot.org/uniprot/P04085) | OID00648 |  |
| 91 | tnfr1\_6 | TNF-R1 | [P19438](https://www.uniprot.org/uniprot/P19438) | OID00649 |  |
| 92 | igfbp2\_6 | IGFBP-2 | [P18065](https://www.uniprot.org/uniprot/P18065) | OID00650 |  |
| 93 | vwf\_6 | vWF | [P04275](https://www.uniprot.org/uniprot/P04275) | OID00651 |  |
| 94 | pecam1\_6 | PECAM-1 | [P16284](https://www.uniprot.org/uniprot/P16284) | OID00652 |  |
| 95 | mepe\_6 | MEPE | [Q9NQ76](https://www.uniprot.org/uniprot/Q9NQ76) | OID00132 |  |
| 96 | ccl16\_6 | CCL16 | [O15467](https://www.uniprot.org/uniprot/O15467) | OID00654 |  |
| 97 | plate\_id\_6 | Plate ID |  |  |  |