

Oligo GEMArray[®] DNA Microarray:

Human Common Cytokines

Catalog Number

OHS-021
EHS-021

Format:

HybTube (Standard protocol)
HybPlate (Higher throughput protocol)

Description

The Oligo GEMArray[®] Human Common Cytokines Microarray profiles the expression of 114 important cytokine genes. This array includes interferons and interleukins as well as the bone morphogenetic proteins (BMP) and members of the TGF- β family. Also represented are colony-stimulating factors and various growth factors (fibroblast, insulin-like, platelet-derived, transforming, and vascular endothelial). Tumor necrosis factors are included as well as other cytokine-related genes. Through a simple side-by-side hybridization experiment you can determine differential gene expression between your samples.

Functional Gene Groupings

Interferons: IFNA1, IFNA13, IFNA14, IFNA2, IFNA4, IFNA5, IFNA8, IFNB1, IFNG, IFNK, IFNW1.

Interleukins: IK, IL10, IL11, IL12A, IL12B, IL13, IL14, IL15, IL16, IL17, IL17B, IL17C, IL17E, IL17F, IL18, IL19, IL1A, IL1B, IL1F10, IL1F5, IL1F6, IL1F7, IL1F8, IL1F9, IL2, IL20, IL21, IL22, IL24, IL26, IL3, IL4, IL5, IL6, IL7, IL8, IL9

Bone Morphogenetic Proteins (BMPs) and the TGF-beta Family: BMP1, BMP10, BMP15, BMP2, BMP3, BMP4, BMP5, BMP6, BMP7, BMP8B, GDF10, GDF11, GDF15, GDF2, GDF3, GDF5, GDF8, GDF9, INHA, INHBA, INHBB, LASS1 (GDF1), NODAL, TGFA, TGFB1, TGFB2, TGFB3.

PDGF / VEGF Family: FIGF, PDGFA, PDGFB, VEGF, VEGFB.

TNF Superfamily: CD40LG (TNFSF5/CD40 ligand), FASLG (TNFSF6), LTA (TNF- β), LTB, TNF (TNF- α), TNFSF4 (OX40 ligand), TNFSF7 (CD27 ligand), TNFSF8 (CD30 ligand), TNFSF9 (4-1BB ligand), TNFSF10 (TRAIL), TNFSF11 (TRANCE), TNFRSF11B (TR1), TNFSF12 (APO3L), TNFSF13 (April), TNFSF13B, TNFSF14 (HVEM-L), TNFSF15 (VEGI), TNFSF18.

Other Growth Factors and Cytokines: AREG, ATP6AP1, CSF1 (M-CSF), CSF2 (GM-CSF), CSF3 (G-CSF), CYFIP2, FAM3B, FAM3C, FGF10, FLT3LG, LEFTY2 (EBAF), MDK, PTN, SLURP1 (ARS), SPP1, THPO.

Storage Conditions

Please check the kit components immediately after you receive this package. SuperArray is only responsible for missing items reported within two (2) business days of receipt.

GEMArray microarrays are shipped at ambient temperature enclosed in either a HybTube or ExpressPak Storage Box. They should be stored at -20°C upon receipt.

References

1. Callard R, Gearing A (1998). *The Cytokine Facts Book*, Academic Press.
2. Oppenheim JJ, Feldmann M (2000) *Cytokine References*.
3. Richard A, Kaempfer R (2000). *Cytokines Revisited at Hilton Head Cytokine and Growth Factor Reviews* **11**: 255-266.
4. Peter J. Delves and Ivan M. Roitt (1998) *Encyclopedia of Immunology*, 2nd Edition, Academic Press.
5. Jacqueline Parkin and Byrony Cohen (2001) An overview of the immune system, *The Lancet* **357**: 1777-89.
6. Angus Thomson (1998) *Cytokine Handbook*, 3rd edition, Academic Press.
7. Anthony Mire-Sluis and Robin Thorpe (1998) *Cytokines*, Academic Press.

Oligo GEArray[®] Human Common Cytokines Microarray

Array Layout:

| | | | | | | | |
|----------------|----------------|-----------------|---------------|----------------|----------------|----------------|-----------------|
| RPS27A 1 | AREG 2 | SLURP1 3 | ATP6AP1 4 | BMP1 5 | BMP10 6 | BMP15 7 | BMP2 8 |
| BMP3 9 | BMP4 10 | BMP5 11 | BMP6 12 | BMP7 13 | BMP8B 14 | CSF1 15 | CSF2 16 |
| CSF3 17 | CYFIP2 18 | LEFTY2 19 | FAM3B 20 | FAM3C 21 | FGF10 22 | FIGF 23 | FLT3LG 24 |
| LASS1 25 | GDF10 26 | GDF11 27 | GDF15 28 | GDF2 29 | GDF3 30 | GDF5 31 | GDF8 32 |
| GDF9 33 | IFNA1 34 | IFNA13 35 | IFNA14 36 | IFNA2 37 | IFNA4 38 | IFNA5 39 | IFNA8 40 |
| IFNB1 41 | IFNG 42 | IFNK 43 | IFNW1 44 | IK 45 | IL10 46 | IL11 47 | IL12A 48 |
| IL12B 49 | IL13 50 | IL14 51 | IL15 52 | IL16 53 | IL17 54 | IL17B 55 | IL17C 56 |
| IL17E 57 | IL17F 58 | IL18 59 | IL19 60 | IL1A 61 | IL1B 62 | IL1F10 63 | IL1F5 64 |
| IL1F6 65 | IL1F7 66 | IL1F8 67 | IL1F9 68 | IL2 69 | IL20 70 | IL21 71 | IL22 72 |
| IL24 73 | IL26 74 | IL3 75 | IL4 76 | IL5 77 | IL6 78 | IL7 79 | IL8 80 |
| IL9 81 | INHBA 82 | INHBB 83 | INHBB 84 | LTA 85 | LTB 86 | MDK 87 | NODAL 88 |
| PDGFA 89 | PDGFB 90 | PTN 91 | SPP1 92 | TGFA 93 | TGFB1 94 | TGFB2 95 | TGFB3 96 |
| THPO 97 | TNF 98 | TNFRSF11B 99 | TNFSF1 100 | TNFSF11 101 | TNFSF12 102 | TNFSF13 103 | TNFSF13B 104 |
| TNFSF14 105 | TNFSF15 106 | TNFSF18 107 | TNFSF4 108 | CD40LG 109 | FASLG 110 | TNFSF7 111 | TNFSF8 112 |
| TNFSF9 113 | VEGF 114 | PUC18 115 | VEGFB 116 | Blank 117 | AS1R2 118 | AS1R1 119 | AS1 120 |
| GAPDH 121 | B2M 122 | HSPCB 123 | HSPCB 124 | ACTB 125 | ACTB 126 | BAS2C 127 | BAS2C 128 |

Gene Table

| Position | UniGene | GenBank | Symbol | Description | Gene Name |
|----------|-----------|-----------|---------|---|-------------------|
| 1 | Hs.546292 | NM_002954 | RPS27A | Ribosomal protein S27a | CEP80/HUBCEP80 |
| 2 | Hs.270833 | NM_001657 | AREG | Amphiregulin (schwannoma-derived growth factor) | AR/CRDGF |
| 3 | Hs.103505 | NM_020427 | SLURP1 | Secreted LY6/PLAUR domain containing 1 | ANUP/ARS |
| 4 | Hs.6551 | NM_001183 | ATP6AP1 | ATPase, H+ transporting, lysosomal accessory protein 1 | 16A/AC45 |
| 5 | Hs.1274 | NM_006129 | BMP1 | Bone morphogenetic protein 1 | PCOLC/TLD |
| 6 | Hs.158317 | NM_014482 | BMP10 | Bone morphogenetic protein 10 | BMP10 |
| 7 | Hs.532692 | NM_005448 | BMP15 | Bone morphogenetic protein 15 | GDF9B/ODG2 |
| 8 | Hs.73853 | NM_001200 | BMP2 | Bone morphogenetic protein 2 | BMP2A |
| 9 | Hs.121507 | NM_001201 | BMP3 | Bone morphogenetic protein 3 (osteogenic) | BMP3 |
| 10 | Hs.68879 | NM_130851 | BMP4 | Bone morphogenetic protein 4 | BMP2B/BMP2B1 |
| 11 | Hs.296648 | NM_021073 | BMP5 | Bone morphogenetic protein 5 | MGC34244 |
| 12 | Hs.285671 | NM_001718 | BMP6 | Bone morphogenetic protein 6 | VGR/VGR1 |
| 13 | Hs.473163 | NM_001719 | BMP7 | Bone morphogenetic protein 7 (osteogenic protein 1) | OP-1 |
| 14 | Hs.409964 | NM_001720 | BMP8B | Bone morphogenetic protein 8b (osteogenic protein 2) | BMP8/OP2 |
| 15 | Hs.173894 | NM_000757 | CSF1 | Colony stimulating factor 1 (macrophage) | MCSF |
| 16 | Hs.1349 | NM_000758 | CSF2 | Colony stimulating factor 2 (granulocyte-macrophage) | GMCSF |
| 17 | Hs.2233 | NM_000759 | CSF3 | Colony stimulating factor 3 (granulocyte) | G-CSF/GCSF |
| 18 | Hs.519702 | NM_014376 | CYFIP2 | Cytoplasmic FMR1 interacting protein 2 | PIR121/PRO1331 |
| 19 | Hs.520187 | NM_003240 | LEFTY2 | Left-right determination factor 2 | EBAF/FACTOR A |
| 20 | Hs.473877 | NM_058186 | FAM3B | Family with sequence similarity 3, member B | 2-21/ORF9 |
| 21 | Hs.434053 | NM_014888 | FAM3C | Family with sequence similarity 3, member C | GS3786 |
| 22 | Hs.248049 | NM_004465 | FGF10 | Fibroblast growth factor 10 | FGF10 |
| 23 | Hs.11392 | NM_004469 | FIGF | C-fos induced growth factor (vascular endothelial growth factor D) | VEGF-D/VEGFD |
| 24 | Hs.428 | NM_001459 | FLT3LG | Fms-related tyrosine kinase 3 ligand | FLT3LG |
| 25 | Hs.412355 | NM_001492 | LASS1 | LAG1 longevity assurance homolog 1 (S. cerevisiae) | LAG1/UOG1 |
| 26 | Hs.2171 | NM_004962 | GDF10 | Growth differentiation factor 10 | BMP-3B/BMP3B |
| 27 | Hs.550500 | NM_005811 | GDF11 | Growth differentiation factor 11 | BMP-11/BMP11 |
| 28 | Hs.515258 | NM_004864 | GDF15 | Growth differentiation factor 15 | GDF-15/MIC-1 |
| 29 | Hs.279463 | NM_016204 | GDF2 | Growth differentiation factor 2 | BMP-9/BMP9 |
| 30 | Hs.86232 | NM_020634 | GDF3 | Growth differentiation factor 3 | GDF3 |
| 31 | Hs.1573 | NM_000557 | GDF5 | Growth differentiation factor 5 (cartilage-derived morphogenetic protein-1) | CDMP1/LAP4 |
| 32 | Hs.41565 | NM_005259 | GDF8 | Growth differentiation factor 8 | MSLN |
| 33 | Hs.25022 | NM_005260 | GDF9 | Growth differentiation factor 9 | GDF9 |
| 34 | Hs.37026 | NM_024013 | IFNA1 | Interferon, alpha 1 | IFL/IFN |
| 35 | Hs.533471 | NM_006900 | IFNA13 | Interferon, alpha 13 | IFNA13 |
| 36 | Hs.93907 | NM_002172 | IFNA14 | Interferon, alpha 14 | IFNA14 |
| 37 | Hs.211575 | NM_000605 | IFNA2 | Interferon, alpha 2 | IFNA/INFA2/IFN-a2 |
| 38 | Hs.1510 | NM_021068 | IFNA4 | Interferon, alpha 4 | INF4A |
| 39 | Hs.37113 | NM_002169 | IFNA5 | Interferon, alpha 5 | INF5A |
| 40 | Hs.73890 | NM_002170 | IFNA8 | Interferon, alpha 8 | IFNA8 |
| 41 | Hs.93177 | NM_002176 | IFNB1 | Interferon, beta 1, fibroblast | IFB/IFF |
| 42 | Hs.856 | NM_000619 | IFNG | Interferon, gamma | IFG/IFI |
| 43 | Hs.551550 | NM_020124 | IFNK | Interferon, kappa | IFNK |
| 44 | Hs.73010 | NM_002177 | IFNW1 | Interferon, omega 1 | IFNW1 |
| 45 | Hs.421245 | NM_006083 | IK | IK cytokine, down-regulator of HLA II | CSA2/IK PROTEIN |
| 46 | Hs.193717 | NM_000572 | IL10 | Interleukin 10 | CSI/IL-10 |
| 47 | Hs.467304 | NM_000641 | IL11 | Interleukin 11 | AGI/IL-11 |
| 48 | Hs.673 | NM_000882 | IL12A | Interleukin 12A (natural killer cell stimulatory factor 1, cytotoxic lymphocyte maturation) | CLMF/IL-12A |

Product Specification Sheet

| Position | UniGene | GenBank | Symbol | Description | Gene Name |
|----------|-----------|-----------|-----------|---|--------------------|
| 49 | Hs.674 | NM_002187 | IL12B | Interleukin 12B (natural killer cell stimulatory factor 2, cytotoxic lymphocyte maturation factor 2, p40) | CLMF/CLMF2 |
| 50 | Hs.845 | NM_002188 | IL13 | Interleukin 13 | ALRH/IL-13 |
| 51 | Hs.17987 | NM_175852 | IL14 | Taxilin | TXLN |
| 52 | Hs.311958 | NM_172175 | IL15 | Interleukin 15 | IL-15 |
| 53 | Hs.459095 | NM_004513 | IL16 | Interleukin 16 (lymphocyte chemoattractant factor) | HST19289/IL-16 |
| 54 | Hs.41724 | NM_002190 | IL17 | Interleukin 17 (cytotoxic T-lymphocyte-associated serine esterase 8) | CTLA8/IL-17 |
| 55 | Hs.409558 | NM_014443 | IL17B | Interleukin 17B | IL-17B/IL-20 |
| 56 | Hs.278911 | NM_013278 | IL17C | Interleukin 17C | CX2/IL-17C |
| 57 | Hs.302036 | NM_022789 | IL17E | Interleukin 17E | IL-17E/IL-25 |
| 58 | Hs.272295 | NM_052872 | IL17F | Interleukin 17F | IL-17F/IL-1 |
| 59 | Hs.83077 | NM_001562 | IL18 | Interleukin 18 (interferon-gamma-inducing factor) | IGIF/IL-18 |
| 60 | Hs.128395 | NM_013371 | IL19 | Interleukin 19 | IL-10C/MDA1 |
| 61 | Hs.1722 | NM_000575 | IL1A | Interleukin 1, alpha | IL-1A/IL1 |
| 62 | Hs.126256 | NM_000576 | IL1B | Interleukin 1, beta | IL-1/IL1-BETA |
| 63 | Hs.306974 | NM_173161 | IL1F10 | Interleukin 1 family, member 10 (theta) | FIL1-THETA/FKSG75 |
| 64 | Hs.516301 | NM_012275 | IL1F5 | Interleukin 1 family, member 5 (delta) | FIL1/FIL1(DELTA) |
| 65 | Hs.278910 | NM_014440 | IL1F6 | Interleukin 1 family, member 6 (epsilon) | FIL1/FIL1(EPSILON) |
| 66 | Hs.166371 | NM_173205 | IL1F7 | Interleukin 1 family, member 7 (zeta) | FIL1/FIL1(ZETA) |
| 67 | Hs.278909 | NM_173178 | IL1F8 | Interleukin 1 family, member 8 (eta) | FIL1/FIL1(ETA) |
| 68 | Hs.211238 | NM_019618 | IL1F9 | Interleukin 1 family, member 9 | IL-1F9/IL-1H1 |
| 69 | Hs.89679 | NM_000586 | IL2 | Interleukin 2 | IL-2/LYMPHOKINE |
| 70 | Hs.272373 | NM_018724 | IL20 | Interleukin 20 | IL-20/IL10D |
| 71 | Hs.302014 | NM_021803 | IL21 | Interleukin 21 | IL-21/ZA11 |
| 72 | Hs.287369 | NM_020525 | IL22 | Interleukin 22 | IL-21/IL-22 |
| 73 | Hs.411311 | NM_006850 | IL24 | Interleukin 24 | C49A/FISP |
| 74 | Hs.272350 | NM_018402 | IL26 | Interleukin 26 | AK155/IL-26 |
| 75 | Hs.694 | NM_000588 | IL3 | Interleukin 3 (colony-stimulating factor, multiple) | IL-3/MCGF |
| 76 | Hs.73917 | NM_000589 | IL4 | Interleukin 4 | BSF1/IL-4 |
| 77 | Hs.2247 | NM_000879 | IL5 | Interleukin 5 (colony-stimulating factor, eosinophil) | EDF/IL-5 |
| 78 | Hs.512234 | NM_000600 | IL6 | Interleukin 6 (interferon, beta 2) | BSF2/HGF |
| 79 | Hs.536926 | NM_000880 | IL7 | Interleukin 7 | IL-7 |
| 80 | Hs.624 | NM_000584 | IL8 | Interleukin 8 | 3-10C/AMCF-1 |
| 81 | Hs.960 | NM_000590 | IL9 | Interleukin 9 | HP40/IL-9 |
| 82 | Hs.407506 | NM_002191 | INHBA | Inhibin, alpha | LOC388931 |
| 83 | Hs.28792 | NM_002192 | INHBA | Inhibin, beta A (activin A, activin AB polypeptide) | EDF/FRP |
| 84 | Hs.1735 | NM_002193 | INHBB | Inhibin, beta B (activin AB beta polypeptide) | INHBB |
| 85 | Hs.36 | NM_000595 | LTA | Lymphotoxin alpha (TNF superfamily, member 1) | CYTOKINE/LT |
| 86 | Hs.376208 | NM_002341 | LTB | Lymphotoxin beta (TNF superfamily, member 3) | CYTOKINE/P33 |
| 87 | Hs.82045 | NM_002391 | MDK | Midkine (neurite growth-promoting factor 2) | MK/NEGF2 |
| 88 | Hs.370414 | NM_018055 | NODAL | Nodal homolog (mouse) | HOMOLOG |
| 89 | Hs.376032 | NM_002607 | PDGFA | Platelet-derived growth factor alpha polypeptide | PDGF-A/PDGF1 |
| 90 | Hs.1976 | NM_002608 | PDGFB | Platelet-derived growth factor beta polypeptide (simian sarcoma viral (v-sis) oncogene homolog) | C-SIS/PDGF2 |
| 91 | Hs.371249 | NM_002825 | PTN | Pleiotrophin (heparin binding growth factor 8, neurite growth-promoting factor 1) | HARP/HBGF8 |
| 92 | Hs.313 | NM_000582 | SPP1 | Secreted phosphoprotein 1 (osteopontin, bone sialoprotein I, early T-lymphocyte) | BNSP/BSP1 |
| 93 | Hs.170009 | NM_003236 | TGFA | Transforming growth factor, alpha | TFGA |
| 94 | Hs.1103 | NM_000660 | TGFB1 | Transforming growth factor, beta 1 (Camurati-Engelmann disease) | BETA 1/CED |
| 95 | Hs.133379 | NM_003238 | TGFB2 | Transforming growth factor, beta 2 | TGF b2 |
| 96 | Hs.2025 | NM_003239 | TGFB3 | Transforming growth factor, beta 3 | TGF b3 |
| 97 | Hs.1166 | NM_000460 | THPO | Thrombopoietin (myeloproliferative leukemia virus oncogene ligand, megakaryocyte growth and development factor) | MGDF/MKCSF |
| 98 | Hs.241570 | NM_000594 | TNF | Tumor necrosis factor (TNF superfamily, member 2) | DIF/TNF-ALPHA |
| 99 | Hs.81791 | NM_002546 | TNFRSF11B | Tumor necrosis factor receptor superfamily, member 11b (osteoprotegerin) | OCIF/OPG |
| 100 | Hs.478275 | NM_003810 | TNFSF10 | Tumor necrosis factor (ligand) superfamily, member 10 | APO-2L/APO2L |
| 101 | Hs.333791 | NM_003701 | TNFSF11 | Tumor necrosis factor (ligand) superfamily, member 11 | HANKL2/ODF |
| 102 | Hs.415839 | NM_003809 | TNFSF12 | Tumor necrosis factor (ligand) superfamily, member 12 | TNFSF12/APO3L |
| 103 | Hs.54673 | NM_003808 | TNFSF13 | Tumor necrosis factor (ligand) superfamily, member 12 | APRIL/LIGAND |
| 104 | Hs.525157 | NM_006573 | TNFSF13B | Tumor necrosis factor (ligand) superfamily, member 13b | BAFF/BLYS |
| 105 | Hs.129708 | NM_003807 | TNFSF14 | Tumor necrosis factor (ligand) superfamily, member 14 | HVEM/LIGHT |
| 106 | Hs.241382 | NM_005118 | TNFSF15 | Tumor necrosis factor (ligand) superfamily, member 15 | TL1/TL1A |
| 107 | Hs.248197 | NM_005092 | TNFSF18 | Tumor necrosis factor (ligand) superfamily, member 18 | AITRL/GITRL |
| 108 | Hs.181097 | NM_003326 | TNFSF4 | Tumor necrosis factor (ligand) superfamily, member 4 (tax-transcriptionally activated glycoprotein 1, 34kDa) | 34KD/CD134L |
| 109 | Hs.652 | NM_000074 | CD40LG | CD40 ligand (TNF superfamily, member 5, hyper-IgM syndrome) | CD154/CD40L |
| 110 | Hs.2007 | NM_000639 | FASLG | Fas ligand (TNF superfamily, member 6) | APT1/LG1/CD178 |
| 111 | Hs.501497 | NM_001252 | TNFSF7 | Tumor necrosis factor (ligand) superfamily, member 7 | CD27L/CD27LG |
| 112 | Hs.494901 | NM_001244 | TNFSF8 | Tumor necrosis factor (ligand) superfamily, member 8 | CD153/CD30L |
| 113 | Hs.1524 | NM_003811 | TNFSF9 | Tumor necrosis factor (ligand) superfamily, member 9 | 4-1BB-L |
| 114 | Hs.73793 | NM_003376 | VEGF | Vascular endothelial growth factor | VEGFA |
| 115 | N/A | L08752 | PUC18 | PUC18 Plasmid DNA | pUC18 |
| 116 | Hs.78781 | NM_003377 | VEGFB | Vascular endothelial growth factor B | VEGFL/VRF |
| 117 | Blank | Blank | Blank | Blank | |
| 118 | N/A | N/A | AS1R2 | Artificial Sequence 1 Related 2 (80% identity)(48/60) | N/A |
| 119 | N/A | N/A | AS1R1 | Artificial Sequence 1 Related 1 (90% identity)(56/60) | N/A |
| 120 | N/A | N/A | AS1 | Artificial Sequence 1 | N/A |
| 121 | Hs.544577 | NM_002046 | GAPDH | Glyceraldehyde-3-phosphate dehydrogenase | G3PD/GAPD |
| 122 | Hs.534255 | NM_004048 | B2M | Beta-2-microglobulin | B2M |
| 123 | Hs.509736 | NM_007355 | HSPCB | Heat shock 90kDa protein 1, beta | BETA/D6S182 |
| 124 | Hs.509736 | NM_007355 | HSPCB | Heat shock 90kDa protein 1, beta | BETA/D6S182 |
| 125 | Hs.520640 | NM_001101 | ACTB | Actin, beta | b-Actin |
| 126 | Hs.520640 | NM_001101 | ACTB | Actin, beta | b-Actin |
| 127 | N/A | N/A | BAS2C | Biotinylated Artificial Sequence 2 Complementary sequence | N/A |
| 128 | N/A | N/A | BAS2C | Biotinylated Artificial Sequence 2 Complementary sequence | N/A |