

Oligo GEMicroarray[®] DNA Microarray: Rat Cancer PathwayFinder™

Catalog Number

ORN-033
ERN-033

Format:

HybTube (Standard protocol)
HybPlate (Higher throughput protocol)

Description

The Oligo GEMicroarray[®] Rat Cancer PathwayFinder™ Microarray profiles the expression of 113 genes representative of the six biological pathways involved in transformation and tumorigenesis listed below. Through a simple side-by-side hybridization experiment you can simultaneously determine which of the 6 pathways is involved in your experimental treatment. Once you have identified the pathways involved in your treatment with this microarray, you can then perform focused profiling experiments using our pathway-specific GEMicroarray Microarrays. Through a simple side-by-side hybridization experiment you can determine differential gene expression between your samples.

Functional Gene Groupings

Cell Cycle Control and DNA Damage Repair: Atm, Brca1, Brca2, Ccnd1, Ccne1, Cdc25a, Cdk2, Cdk4, Cdkn1a (p21Waf1), Cdkn1b (p27Kip1), Cdkn2a (p16Ink4), Chek2 (Rad53), E2f1, Mdm2, Prkdc, Pten, Rb1, Tp53.

Apoptosis and Cell Senescence: Apaf1, Bad, Bak1, Bax, Bcl2, Bcl2l1 (bcl-X), Birc5 (survivin), Casp8, Casp9, Cflar, Gzma, Htatip2, Tert (telomerase), Tnfrsf1a, Tnfrsf6 (Fas), Tnfrsf10b (DR5).

Signal Transduction Molecules and Transcription Factors: Akt1, Akt2, Ctnnb1 (Catnb), ErbB2, Ets2, Fos, Grb2, Jun, Map2k1 (MEK), Mapk14 (p38 MAPK), Myc, Nfkb1, Nfkbia (IκBα), Pik3c2a, Pik3cb, Pik3r1, Raf1, Rasa1, Sncg, Src.

Adhesion: Cd44, Cdh1, Icam1, Itga1, Itga2, Itga3, Itga4, Itga5, Itga6, Itgav, Itgb1, Itgb3, Itgb5, LCO368070 (Pnn), Mcam, Mtss1, Ncam1.

Angiogenesis: Agpt2 (angiopoietin-2), Angpt1, Bai1, Col18a1 (endostatin), Egf, Egfr, Fgf1, Fgf2, Fgfr2, Flt1, Hgf, Ifna1, Ifnb1, Igf1, Pdgfa, Pdgfb, Tek, Tgfb1, Tgfb1 (ALK-5), Thbs2, Tnf, Vegfa.

Invasion and Metastasis: Kai1, Kiss1, Met, Mmp1a (collagenase-1), Mmp2, Mmp9, Mta1, Mta2, Nme1, Plau (uPA), Plaur (uPAR), S100a4, Serpinb2, Serpinb5 (maspin), Serpine1 (PAI1), Spp1 (osteopontin), Syk, Timp1, Timp3, Twist1.

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.

GEMicroarray 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. Hanahan, D. and Weinberg, R.A. (2000) The Hallmarks Of Cancer. *Cell* **100**: 57-70.
2. Tsatsanis, C. and Spandidos, D.A. (2000) The Role Of Oncogenic Kinases In Human Cancer. *Int J Mol Med* **5**: 583-590.
3. Meyer, T. and Hart, I.R. (1998) Mechanisms Of Tumour Metastasis. *Eur J Cancer* **34**: 214-221.
4. Detmar, M. (2000) Tumor Angiogenesis. *JID Symposium Proceedings* **5**: 20-23.
5. Klingelutz, A.J. (1999) The Roles Of Telomeres And Telomerase In Cellular Immortalization And The Development Of Cancer. *Anticancer Res* **19**: 4823-4830.
6. Kaufmann, S.H. and Gores, G.J. (2000) Apoptosis In Cancer: Cause And Cure. *BioEssays* **22**: 1007-1017.
7. Lowe, S.W. and Lin, A.W. (2000) Apoptosis In Cancer. *Carcinogenesis* **21**: 485-495.
8. Funk, J.O. (1999) Cancer Cell Cycle Control. *Anticancer Res* **19**: 4772-4780.
9. Molinari, M. (2000) Cell Cycle Checkpoints And Their Inactivation In Human Cancer. *Cell Prolif* **33**: 261-274.
10. Clezardin, P. (1998) Recent Insights Into The Role Of Integrins In Cancer Metastasis. *Cell Mol Life Sci* **54**: 541-548.

Product Specification Sheet

| Position | UniGene | GenBank | Symbol | Description | Gene Name |
|----------|-----------|--------------|---------------------|---|------------------|
| 48 | Rn.143194 | NM_001014786 | Ifna1 | Interferon-alpha 1 | IFN-alpha1 |
| 49 | Rn.138105 | NM_019127 | Ifnb1 | Interferon, beta 1 | Ifnb |
| 50 | Rn.6282 | NM_178866 | Igf1 | Insulin-like growth factor 1 | Igf1 |
| 51 | Rn.91044 | NM_030994 | Igga1 | Integrin, alpha 1 | Igga1 |
| 52 | Rn.83597 | XM_345156 | Igga2 | Integrin, alpha 2 | CD49B |
| 53 | Rn.154664 | XM_340884 | Igga3_predicted | Integrin, alpha 3 (predicted) | Igga3 |
| 54 | Rn.12704 | XM_230033 | Igga4_mapped | Integrin, alpha 4 (mapped) | Igga4 |
| 55 | Rn.100796 | XM_235707 | Igga5_mapped | Integrin, alpha 5 (mapped) | Igga5 |
| 56 | Rn.22382 | XM_215984 | Igga6 | Integrin, alpha 6 | Igga6 |
| 57 | Rn.23339 | XM_230950 | Ilgav_predicted | Integrin, alpha V (vitronectin receptor, alpha polypeptide, antigen CD51) (predicted) | Cd51/Ilgav |
| 58 | Rn.25733 | NM_017022 | Itgβ1 | Integrin beta 1 (fibronectin receptor beta) | Itgβ1 |
| 59 | Rn.17129 | NM_153720 | Itgβ3 | Integrin beta 3 | Itgβ3 |
| 60 | Rn.16988 | NM_147139 | Itgβ5 | Integrin, beta 5 | Itgβ5 |
| 61 | Rn.93714 | NM_021835 | Jun | Jun oncogene | Jun |
| 62 | Rn.3022 | NM_031797 | Kai1 | Kangai 1 | Cd82 |
| 63 | Rn.66008 | NM_181692 | Kiss1 | KISS-1 metastasis-suppressor | Esepin |
| 64 | Rn.38987 | XM_347237 | LOC368070 | Similar to pinin | Pnn |
| 65 | Rn.5850 | NM_031643 | Map2k1 | Mitogen activated protein kinase 1 | Mek1 |
| 66 | Rn.88085 | NM_031020 | Mapk14 | Mitogen activated protein kinase 14 | CSBP/CSPB1 |
| 67 | Rn.2694 | NM_023983 | Mcam | Melanoma cell adhesion molecule | Muc18 |
| 68 | Rn.91829 | XM_235169 | Mdm2 | Transformed mouse 3T3 cell double minute 2 | LOC314856 |
| 69 | Rn.10617 | NM_031517 | Met | Met proto-oncogene | Hgfr |
| 70 | Rn.79007 | XM_235794 | Mmp1a_predicted | Matrix metalloproteinase 1a (interstitial collagenase) (predicted) | LOC300339 |
| 71 | Rn.6422 | NM_031054 | Mmp2 | Matrix metalloproteinase 2 | Mmp2 |
| 72 | Rn.10209 | NM_031055 | Mmp9 | Matrix metalloproteinase 9 | Mmp9 |
| 73 | Rn.5840 | NM_022588 | Mta1 | Metastasis associated 1 | Mta1 |
| 74 | Rn.137719 | XM_342015 | Mta2 | Metastasis-associated gene family, member 2 | Mta2 |
| 75 | Rn.38488 | XM_343248 | Mtss1_predicted | Metastasis suppressor 1 (predicted) | Mtss1 |
| 76 | Rn.12072 | NM_012603 | Myc | Myelocytomatosis viral oncogene homolog (avian) | RNCMYC/c-myc |
| 77 | Rn.11283 | NM_031521 | Ncam1 | Neural cell adhesion molecule 1 | Cd56/N-CAM |
| 78 | Rn.2411 | XM_342346 | Nfkb1 | Nuclear factor of kappa light chain gene enhancer in B-cells 1, p105 | NF-κB |
| 79 | Rn.12550 | XM_343065 | Nfkbia | Nuclear factor of kappa light chain gene enhancer in B-cells inhibitor, alpha | RL/IF-1 |
| 80 | Rn.6236 | NM_138548 | Nme1 | Expressed in non-metastatic cells 1 | Nme1 |
| 81 | Rn.10999 | NM_012801 | Pdgfra | Platelet derived growth factor, alpha | PDGFACF |
| 82 | Rn.124264 | XM_343293 | Pdgfβ | Platelet derived growth factor, B polypeptide | SIS/c-sis |
| 83 | Rn.162448 | XM_341911 | Pik3c2a_predicted | Phosphatidylinositol 3-kinase, C2 domain containing, alpha polypeptide (predicted) | Pik3c2a |
| 84 | Rn.44268 | NM_053481 | Pik3cb | Phosphatidylinositol 3-kinase, catalytic, beta polypeptide | Pik3cb |
| 85 | Rn.10599 | NM_013005 | Pik3r1 | Phosphatidylinositol 3-kinase, regulatory subunit, polypeptide 1 | P13KA |
| 86 | Rn.6064 | NM_013085 | Plau | Plasminogen activator, urokinase | UPAM |
| 87 | Rn.82711 | NM_017350 | Plaur | Plasminogen activator, urokinase receptor | Par/Plaur3 |
| 88 | Rn.24110 | XM_341020 | Prkdc_predicted | Protein kinase, DNA activated, catalytic polypeptide (predicted) | LOC360748 |
| 89 | Rn.22158 | NM_031606 | Pten | Phosphatase and tensin homolog | MMAC1/Mmac |
| 90 | Rn.33262 | NM_012639 | Raf1 | V-raf-1 murine leukemia viral oncogene homolog 1 | Raf1 |
| 91 | Rn.12223 | NM_013135 | Rasa1 | RAS p21 protein activator 1 | GAPX/Rasa |
| 92 | Rn.55115 | XM_344434 | Rb1 | Retinoblastoma 1 | Rb1 |
| 93 | Rn.504 | NM_012618 | S100a4 | S100 calcium-binding protein A4 | 18A2/42A |
| 94 | Rn.42912 | NM_021696 | Serpinh2 | Serine (or cysteine) proteinase inhibitor, clade B, member 2 | Pai2a |
| 95 | Rn.25752 | NM_057108 | Serpinh5 | Serine (or cysteine) proteinase inhibitor, clade B, member 5 | Maspin/Pi5 |
| 96 | Rn.29367 | NM_012620 | Serpine1 | Serine (or cysteine) proteinase inhibitor, clade E, member 1 | PAI1A/Pai1 |
| 97 | Rn.2883 | NM_031688 | Sncg | Synuclein, gamma | Sncg |
| 98 | Rn.8871 | NM_012881 | Spp1 | Secreted phosphoprotein 1 | OSP |
| 99 | Rn.112600 | NM_031977 | Src | Rous sarcoma oncogene | Src |
| 100 | Rn.87407 | NM_012758 | Syk | Spleen tyrosine kinase | p72syk |
| 101 | Rn.9159 | XM_342863 | Tek | Endothelial-specific receptor tyrosine kinase | Tie-2/Tie2 |
| 102 | Rn.48802 | NM_053423 | Tert | Telomerase reverse transcriptase | Tert |
| 103 | Rn.40136 | NM_021578 | Tgfb1 | Transforming growth factor, beta 1 | Tgfb1 |
| 104 | Rn.44402 | NM_012775 | Tgfb1r1 | Transforming growth factor, beta receptor 1 | MGC93659 |
| 105 | Rn.61598 | XM_214778 | Thbs2 | Thrombospondin 2 | TSP-2 |
| 106 | Rn.25754 | NM_053819 | Timp1 | Tissue inhibitor of metalloproteinase 1 | TIMP-1/Timp |
| 107 | Rn.119634 | NM_012886 | Timp3 | Tissue inhibitor of metalloproteinase 3 (Sorsby fundus dystrophy, pseudoinflammatory) | Timp3 |
| 108 | Rn.2275 | NM_012675 | Tnf | Tumor necrosis factor superfamily, member 2 | RATTNF/TNF-alpha |
| 109 | Rn.105558 | XM_344431 | Tnfrsf10b_predicted | Tumor necrosis factor receptor superfamily, member 10b (predicted) | LOC364420 |
| 110 | Rn.11119 | NM_013091 | Tnfrsf1a | Tumor necrosis factor receptor superfamily, member 1a | Tnfr1 |
| 111 | Rn.144672 | NM_139194 | Tnfrsf6 | Tumor necrosis factor receptor superfamily, member 6 | LOC365454 |
| 112 | Rn.54443 | NM_030989 | Trp53 | Tumor protein p53 | Trp53/p53 |
| 113 | Rn.35420 | NM_053530 | Twist1 | Twist gene homolog 1 (Drosophila) | Twist |
| 114 | Rn.1923 | NM_031836 | Vegfa | Vascular endothelial growth factor A | Vegf |
| 115 | N/A | L08752 | PUC18 | PUC18 Plasmid DNA | pUC18 |
| 116 | Blank | Blank | Blank | Blank | |
| 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 | Rn.110966 | NM_013226 | Rpl32 | Ribosomal protein L32 | Rpl32 |
| 122 | Rn.107896 | NM_017025 | Ldha | Lactate dehydrogenase A | Ldha |
| 123 | Rn.1774 | NM_012495 | Aldoa | Aldolase A | Aldoa |
| 124 | Rn.1774 | NM_012495 | Aldoa | Aldolase A | Aldoa |
| 125 | Rn.91450 | NM_017008 | Gapd | Glyceraldehyde-3-phosphate dehydrogenase | Gapd |
| 126 | Rn.91450 | NM_017008 | Gapd | Glyceraldehyde-3-phosphate dehydrogenase | Gapd |
| 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 |