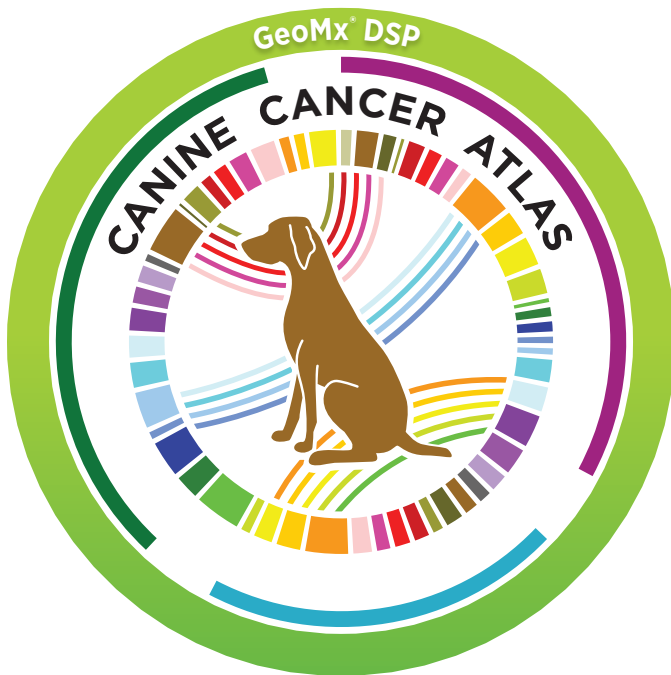


GeoMx[®] Canine Cancer Atlas

Spatial Gene Expression Assay

Covering 1,962 genes involved in the immune response of canines to immuno-oncology (IO) therapeutics and designed alongside experts in canine comparative oncology, the GeoMx Canine Cancer Atlas (CCA) empowers researchers to study the tumor and immune response of canines to IO treatments.



Product Highlights

- Spatially profile 1,962 genes and 48 control targets across 110 annotated pathways involved in the canine immune response to IO treatments
- Tumor specific content for top canine cancers including melanoma, osteosarcoma, lymphoma, urothelial carcinoma, and glioblastoma
- Superior sensitivity to detect 1000s of unique genes
- Overlapping content with NanoString's nCounter[®] Canine IO Panel
- Flexibility to customize with up to 400 additional targets to assay non-coding RNA, synthetic DNA or exogenous genes
- Integrated with Illumina library prep protocols and streamlined NGS analysis pipelines
- Visualization and statistical analysis with the GeoMx DSP Data Analysis Suite and bioinformatics toolset

Ordering Information

The Canine Cancer Atlas arrives ready-to-use and generally ships within 24 hours following purchase.

Product	Product Description	Quantity	Catalog Number
GeoMx NGS RNA CCA Canine	RNA Probe set including 1,900+ targets plus ERCC negative controls for canine immune response, tumor biology, and microenvironment. Includes RNA probes designed for Illumina NGS readout with the Seq Code library prep kit.	4 Slides	GMX-NGS-RNA-CCA-Canine-4
GeoMx NGS RNA AutoCCA Canine	RNA Probe set including 1,900+ targets plus ERCC negative controls for canine immune response, tumor biology, and microenvironment. Includes RNA probes designed for Illumina NGS readout with the Seq Code library prep kit and formulated for use with the BOND RX Fully Automated Research Stainer from Leica Biosystems.	12 Slides	GMX-NGS-RNA-AutoCCA-Canine-12

GeoMx Canine Cancer Atlas Panel Annotations

The tables below summarize the different categories of gene content represented in the panel, as qualified through biostatistical approaches and selected literature in the field of comparative canine oncology.

Adaptive Immunity	# Targets
B Cells	35
BCR Signaling	78
Cancer Antigens	3
MHC Class I Antigen Presentation	61
MHC Class II Antigen Presentation	18
T Cells	90
T-cell Checkpoints	27
TCR Signaling	109
TH1 Differentiation	23
TH17 Differentiation	42
TH2 Differentiation	21
TH9 Differentiation	11
Treg Differentiation	15

Immune Response	# Targets
Chemokine Signaling	121
Cytotoxicity	6
IL-1 Signaling	63
IL-17 Signaling	50
IL-2 Signaling	39
IL-6 Signaling	19
Immune Exhaustion	20
Interferon Response Genes	29
Lymphocyte Regulation	89
Lymphocyte Trafficking	47
NF-kB Signaling	115
Other Interleukin Signaling	183
Prostaglandin Inflammation	4
TNF Signaling	94
Type I Interferon Signaling	47
Type II Interferon Signaling	42
Type III Interferon Signaling	8

Innate Immunity	# Targets
Complement System	48
Dendritic Cells	22
DNA Sensing	46
Glycan Sensing	59
Host Defense Peptides	19
Inflammasomes	11
Myeloid Inflammation	104
Neutrophil degranulation	120
NK Activity	93
NLR Signaling	82
RAGE Signaling	8
RNA Sensing	60
TLR Signaling	136

Cell Function	# Targets
Apoptosis	121
Autophagy	64
Cell Adhesion & Motility	207
Cell Cycle	167
Cilium Assembly	8
Differentiation	250
DNA Damage Repair	92
EMT	108
Endocytosis	58
Epigenetic Modification	177
Immortality & Stemness	33
Ion Transport	42
Lysosome	16
Oxidative Stress	164
Phagocytosis	100
Proteotoxic Stress	19
RNA Processing	34
Senescence	131

Metabolism	# Targets
Amino Acid Synthesis & Transport	46
Arginine Metabolism	14
Fatty Acid Oxidation	7
Fatty Acid Synthesis	5
Glutamine Metabolism	9
Glycolysis & Glucose Transport	28
Glycosylation	12
IDH1/2	10
Lipid Metabolism	95
Mitochondrial Metabolism / TCA	55
Nucleotide Synthesis	8
Pentose Phosphate Pathway	7
Tryptophan & Kynurenine Metabolism	8
Vitamin & Cofactor Metabolism	23

Signaling Pathways	# Targets
AMPK Signaling	48
Androgen Signaling	34
EGFR Signaling	20
ERBB2 Signaling	24
Estrogen Signaling	89
FGFR Signaling	42
FoxO Signaling	84
GPCR Signaling	168
Hedgehog Signaling	46
HIF1 Signaling	79
Insulin Signaling	84
JAK-STAT Signaling	123
MAPK Signaling	266
MET Signaling	36
mTOR Signaling	122
Myc	27
NO Signaling	9
Notch Signaling	83
p53 Signaling	76
PDGF Signaling	33
PI3K-Akt Signaling	252
PPAR Signaling	20
Purinergic Signaling	5
Retinoic Acid Signaling	5
TGF-beta Signaling	107
VEGF Signaling	71
Wnt Signaling	137
Hippo Signaling	8

Physiology & Disease	# Targets
Angiotensin System	5
Cancer Type Relevant	208
Circadian Clock	26
Drug Resistance	6
Matrix Remodeling and Metastasis	61
Neuroendocrine Function	7

Selected Panel References

1. Canter RJ et al. Characterization and Potential Applications of Dog Natural Killer Cells in Cancer Immunotherapy. *Journal of Clinical Medicine*. 2019; 8, 1802.
2. Chen D et. al. Top 10 Challenges in Cancer Immunotherapy. *Immunity*. 2020; 52 (1), 17-35.
3. Plassais J et al. Whole Genome Sequencing of Canids Reveals Genomic Regions Under Selection and Variants Influencing Morphology. *Nature Communications*. 2019; 10:1489.

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