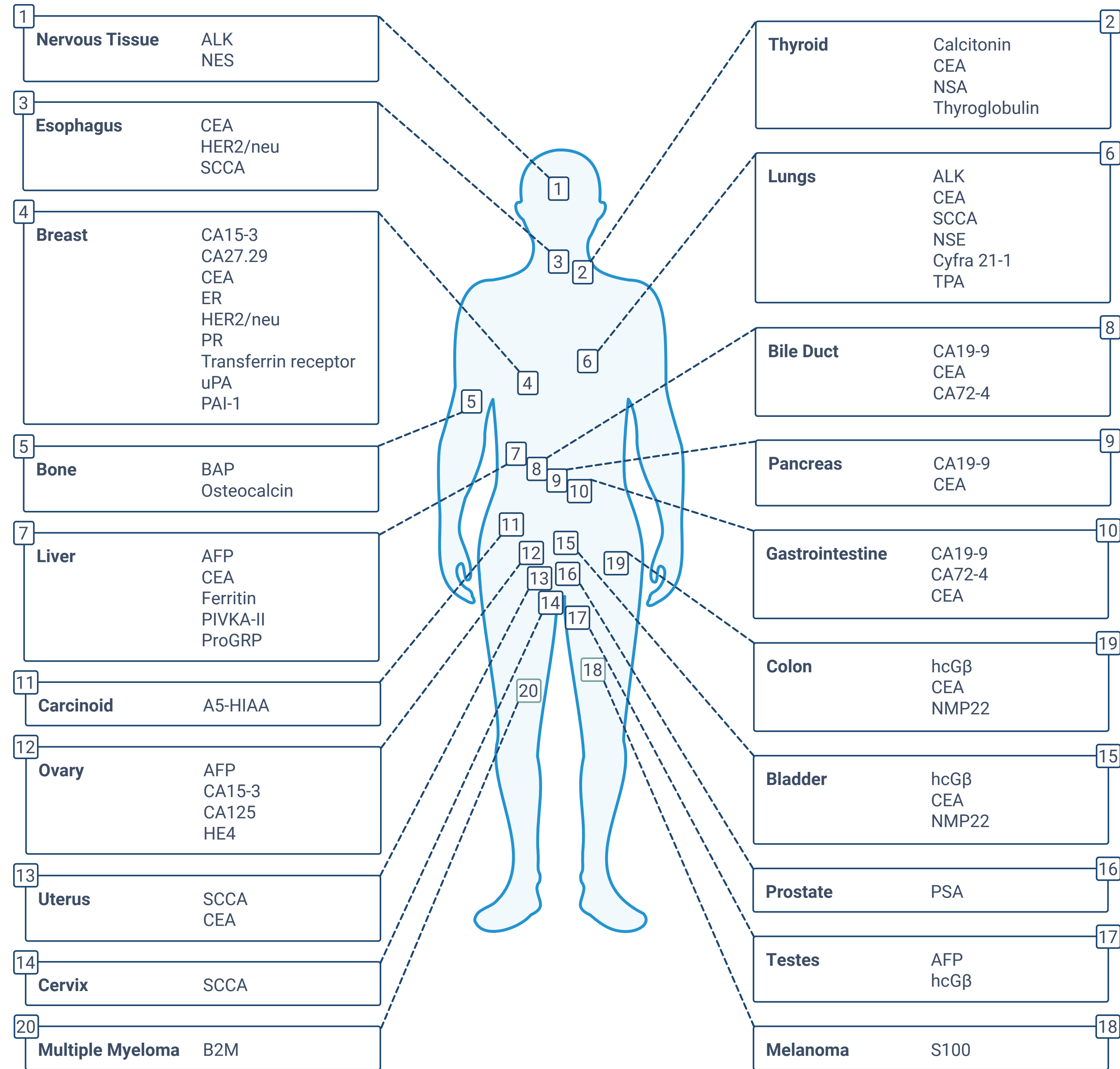


Biomarkers in tumor diagnostics

Tumor markers represent a subset of biomarkers that are indicative for cancerous growth. Most of these marker are being produced by both normal cells and tumor cells. However, the levels at which they are present in bodily fluids like urine, saliva, or blood are typically significantly higher in patients with various malignancies.

There are various tumor markers being used that can be classified based on their function, the way they are detected, or the kind of sample in which they are measured. A perfect tumor marker is highly specific and differentiates reliably between healthy individuals and cancer patients. It can be a universal tumor marker or specific for one particular malignancy. It should enable early detection of early stage tumors while distinguishing tumor stages and providing prognostic value for outcome and potential recurrence. Lastly, it should be easily measurable with established techniques to follow any changes during the course of a treatment.



Category	Marker	Gene	Gene ID	Uniprot	Acute Lymphoblastic Leukemia	Acute Myelogenous Leukemia	Bile Duct Cancer	Bone Cancer	Breast Cancer	Cholangiocarcinoma	Carcinoid	Cutaneous Melanoma	Cutaneous Melanoma	Chronic Lymphocytic Leukemia	Colorectal Cancer	Cancer Stem Cell	Esophageal Cancer	Gastrointestinal Cancer	Germ Cell Tumor	Liver Cancer	Lung Cancer	Lymphoma	Mucosal Melanoma	Multiple Myeloma	Neuroendocrine Tumor	Nervous Tissue Cancer	Prostate Cancer	Skin Cancer	Testicular Cancer	Thyroid Cancer	Bladder Cancer	Uterine Cancer
Oncofetal Antigens	Alpha-fetoprotein	AFP	174	P02771																												
	Carcinoembryonic antigen (CEA)	CEACAM5	1048	P06731																												
	Carcinoembryonic antigen (CEA)	CEACAM6	4680	P40199																												
	Carcinoembryonic antigen (CEA)	CEACAM1	634	P13688																												
Tumor-associated Antigens	5-HIAA	-	-	-																												
	CA15-3	MUC1	4582	P15941																												
	CA19-9	-	-	-																												
	CA27.29	MUC1	4582	P15941																												
	CA72-4	-	-	-																												
Hormones & Receptors	CA125	MUC16	94025	Q8WX7																												
	Beta-human chorionic gonadotropin (hCGβ)	CGA, CGB	1081/ 1082	P01215/P0123																												
	Calcitonin	CALC1	796	P01258																												
	Chromogranin A (CgA)	CHGA	1113	P10645																												
	EGFR mutation analysis	EGFR	1956	P00533																												
	Estrogen receptor (ER)	ESR1	2099	P03372																												
	Estrogen receptor (ER)	ESR2	2100	Q92731																												
	HER2/neu	ERBB2	2064	P04626																												
	Osteocalcin	BGLAP	632	P02818																												
	Progesterone receptor (PR)	PGR	5241	P06401																												
DDR	transferrin receptor	TFRC	7037	P02786																												
	transthyretin	TTR	7276	P02766																												
Enzymes & Modulators	Breast cancer type 1 susceptibility protein	BRCA1	672	P38398																												
	Breast cancer type 2 susceptibility protein	BRCA2	675	P51587																												
	Anaplastic lymphoma kinase	ALK	238	Q9UM73																												
	Alkaline phosphatase (BAP)	ALPL	249	P05186																												
	BCR-ABL fusion gene	BCR/ABL1	613/25	P11274/ P00519																												
	BRAF V600E	BRAF	673	P15056																												
	KIT	KIT	3815	P10721																												
	KRAS mutation analysis	KRAS	3845	P01116																												
	Prostate-specific antigen	PSA	354	P07288																												
	Lactate dehydrogenase	LDHA	3939	P00338																												
	Lactate dehydrogenase	LDHB	3945	P07195																												
	Lactate dehydrogenase	LDHC	3948	P07864																												
	Neuron specific enolase (NSE)	ENO2	2026	P09104																												
	Nuclear matrix protein 22 (NMP22)	NUMA1	4926	Q14980																												
	plasminogen activator inhibitor (PAI-1)	SERPINE1	5054	P05121																												
SCCA	SERPINB3	6317	P29508																													
SCCA2	SERPINB4	6318	P48594																													
Serum & Tissue Proteins	Urokinase plasminogen activator (uPA)	PLAU	5328	P00749																												
	Apolipoprotein A1	APOA1	335	P02647																												
	Beta-2-microglobulin	B2M	567	P61769																												
	Cytokeratin fragments 21-1 (Cyfra 21-1)	KRT19	3880	P08727																												
	Epididymal secretory protein E4 (HE4)	WAP5	10406	Q14508																												
	Ferritin	FTL, FTH1	2495/ 2512	P02792/ P02794																												
	Fibrinogen	-	-	-																												
	Fibrin D-dimer	-	-	-																												
	S100	S100A1	6271	P23297																												
	Tissue polypeptide antigen (TPA)	-	-	-																												
Cancer Stem Cells	Thyroglobulin	TG	7038	P01266																												
	Aldehyde dehydrogenase	ALDH1A1	216	P00352																												
	CD20	MS4A1	931	P11836																												
	CD24	CD24	100133941	P25063																												
	CD44	CD44	960	P16070																												
	CD133	PROM1	8842	O43490																												
Peptide	Nestin	NES	10763	P48681																												
	ProGRP	GRP	2922	P07492																												

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