Figure 1A

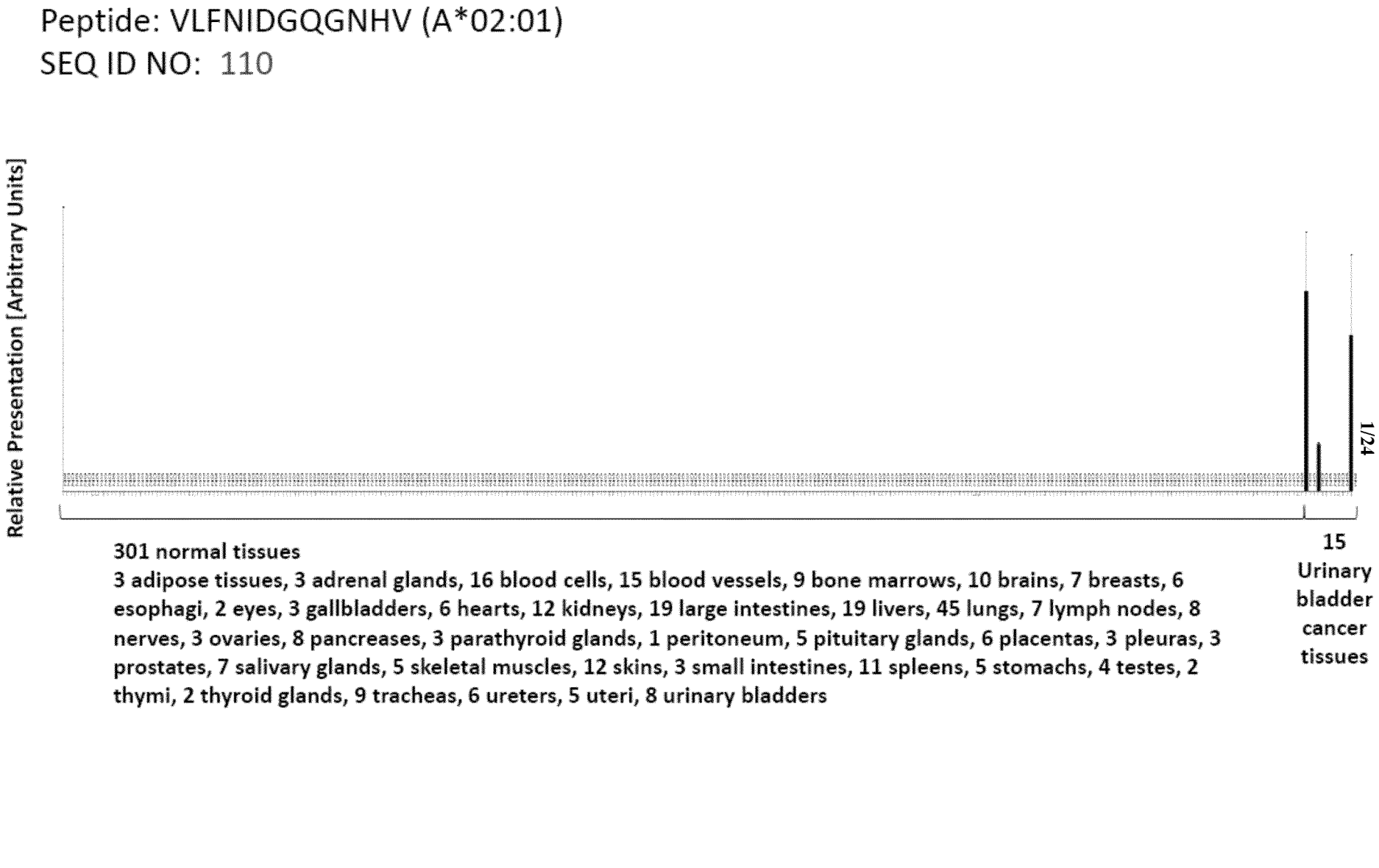

Peptide: VLFNIDGQGNHV (A*02:01)
SEQ ID NO: 110
Relative Presentation [Arbitrary Units]
1/24
301 normal tissues
3 adipose tissues, 3 adrenal glands, 16 blood cells, 15 blood vessels, 9 bone marrows, 10 brains, 7 breasts, 6 esophagi, 2 eyes, 3 gallbladders, 6 hearts, 12 kidneys, 19 large intestines, 19 livers, 45 lungs, 7 lymph nodes, 8 nerves, 3 ovaries, 8 pancreases, 3 parathyroid glands, 1 peritoneum, 5 pituitary glands, 6 placentas, 3 pleuras, 3 prostates, 7 salivary glands, 5 skeletal muscles, 12 skins, 3 small intestines, 11 spleens, 5 stomachs, 4 testes, 2 thymi, 2 thyroid glands, 9 tracheas, 6 ureters, 5 uteri, 8 urinary bladders
15
Urinary bladder cancer tissues

Figure 1B

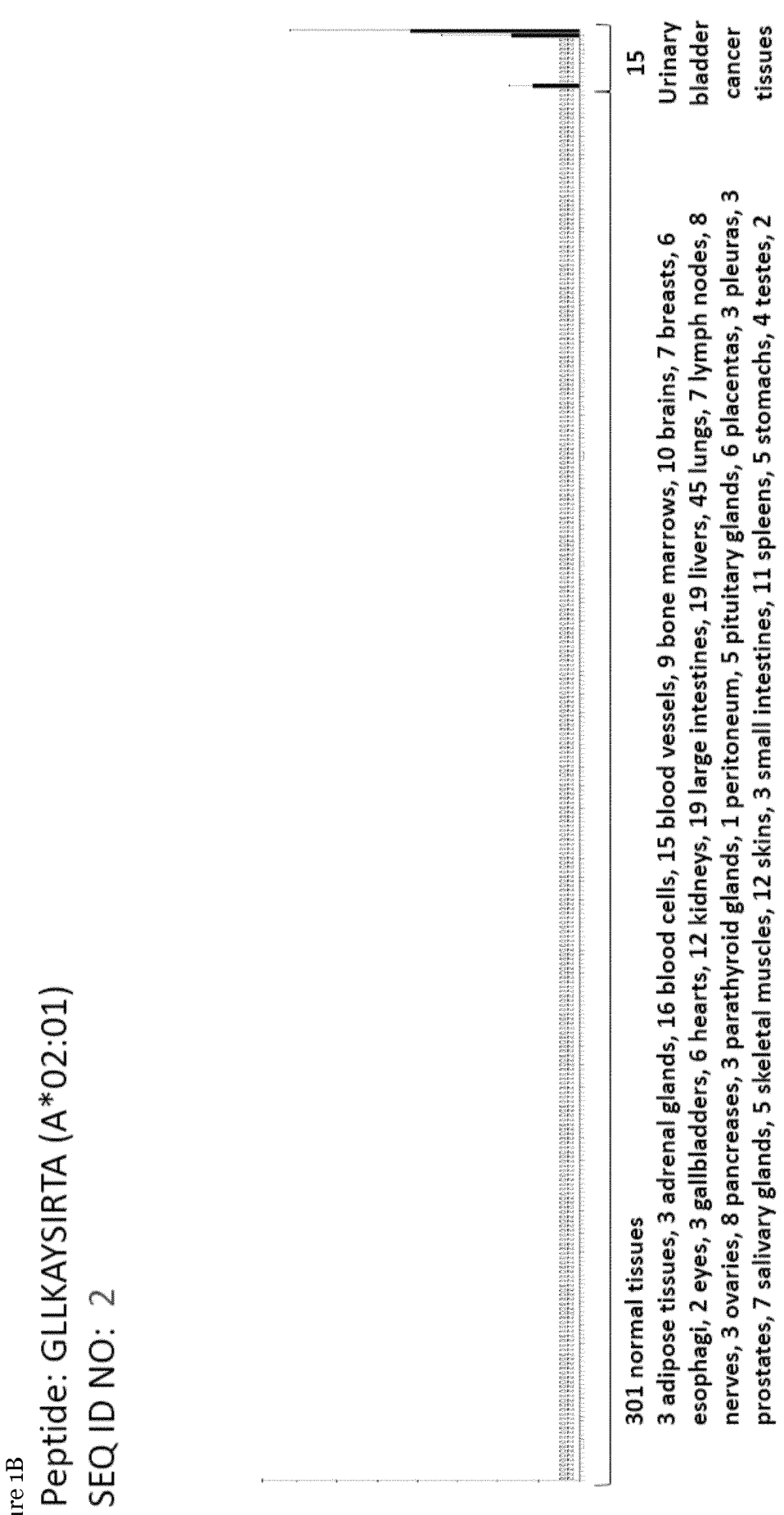

Peptide: GLLKAYSIRTA (A*02:01)
SEQ ID NO: 2
Relative Presentation [Arbitrary Units]
301 normal tissues
3 adipose tissues, 3 adrenal glands, 16 blood cells, 15 blood vessels, 9 bone marrows, 10 brains, 7 breasts, 6 esophagi, 2 eyes, 3 gallbladders, 6 hearts, 12 kidneys, 19 large intestines, 19 livers, 45 lungs, 7 lymph nodes, 8 nerves, 3 ovaries, 8 pancreases, 3 parathyroid glands, 1 peritoneum, 5 pituitary glands, 6 placentas, 3 pleuras, 3 prostates, 7 salivary glands, 5 skeletal muscles, 12 skins, 3 small intestines, 11 spleens, 5 stomachs, 4 testes, 2 thymi, 2 thyroid glands, 9 tracheas, 6 ureters, 5 uteri, 8 urinary bladders
15
Urinary bladder cancer tissues

Figure 1C

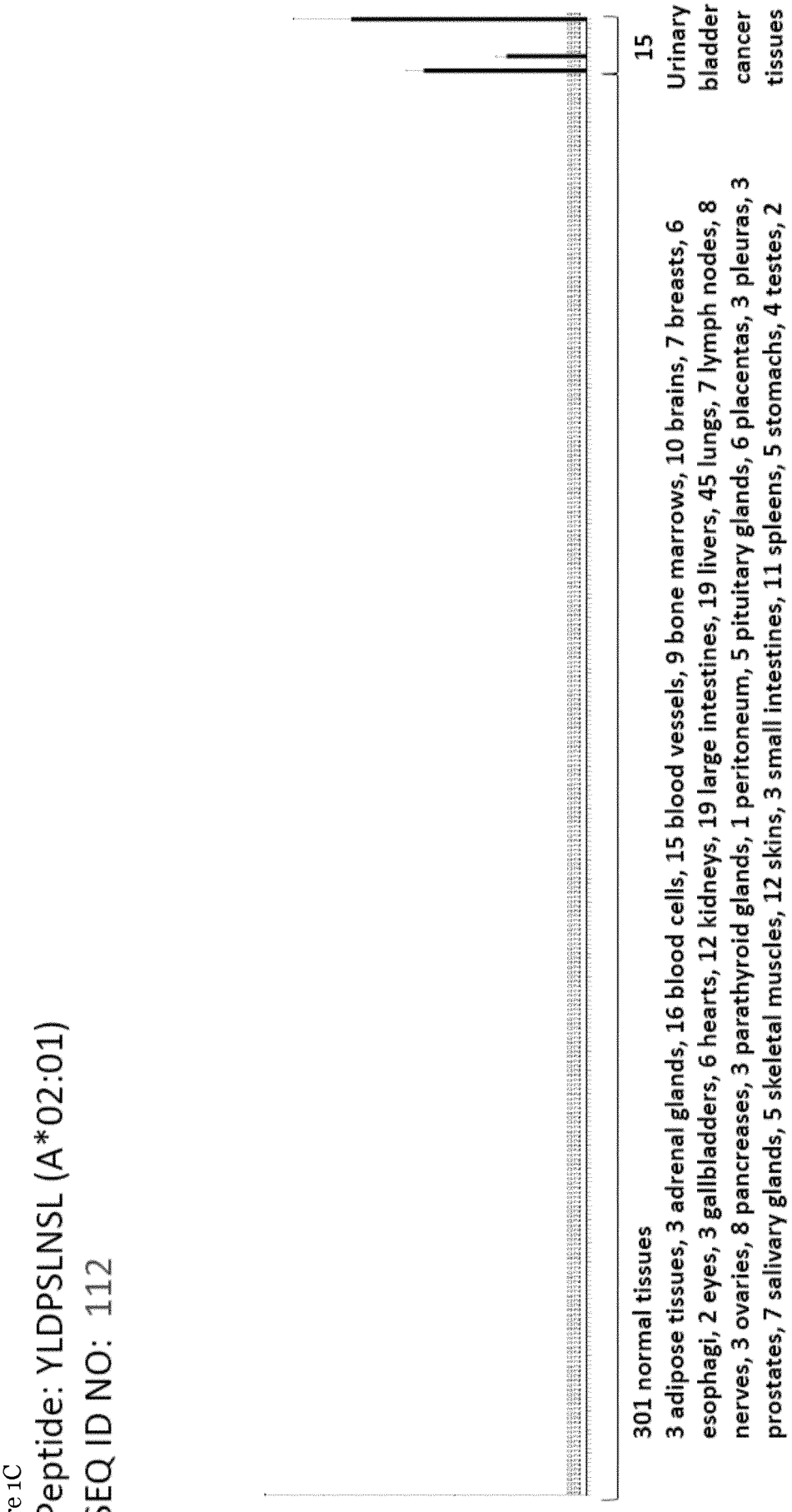

Peptide: YLDPSLNSL (A*02:01)
SEQ ID NO: 112
Relative Presentation [Arbitrary Units]
301 normal tissues
3 adipose tissues, 3 adrenal glands, 16 blood cells, 15 blood vessels, 9 bone marrows, 10 brains, 7 breasts, 6 esophagi, 2 eyes, 3 gallbladders, 6 hearts, 12 kidneys, 19 large intestines, 19 livers, 45 lungs, 7 lymph nodes, 8 nerves, 3 ovaries, 8 pancreases, 3 parathyroid glands, 1 peritoneum, 5 pituitary glands, 6 placentas, 3 pleuras, 3 prostates, 7 salivary glands, 5 skeletal muscles, 12 skins, 3 small intestines, 11 spleens, 5 stomachs, 4 testes, 2 thymi, 2 thyroid glands, 9 tracheas, 6 ureters, 5 uteri, 8 urinary bladders
15
Urinary bladder cancer tissues

Figure 1D

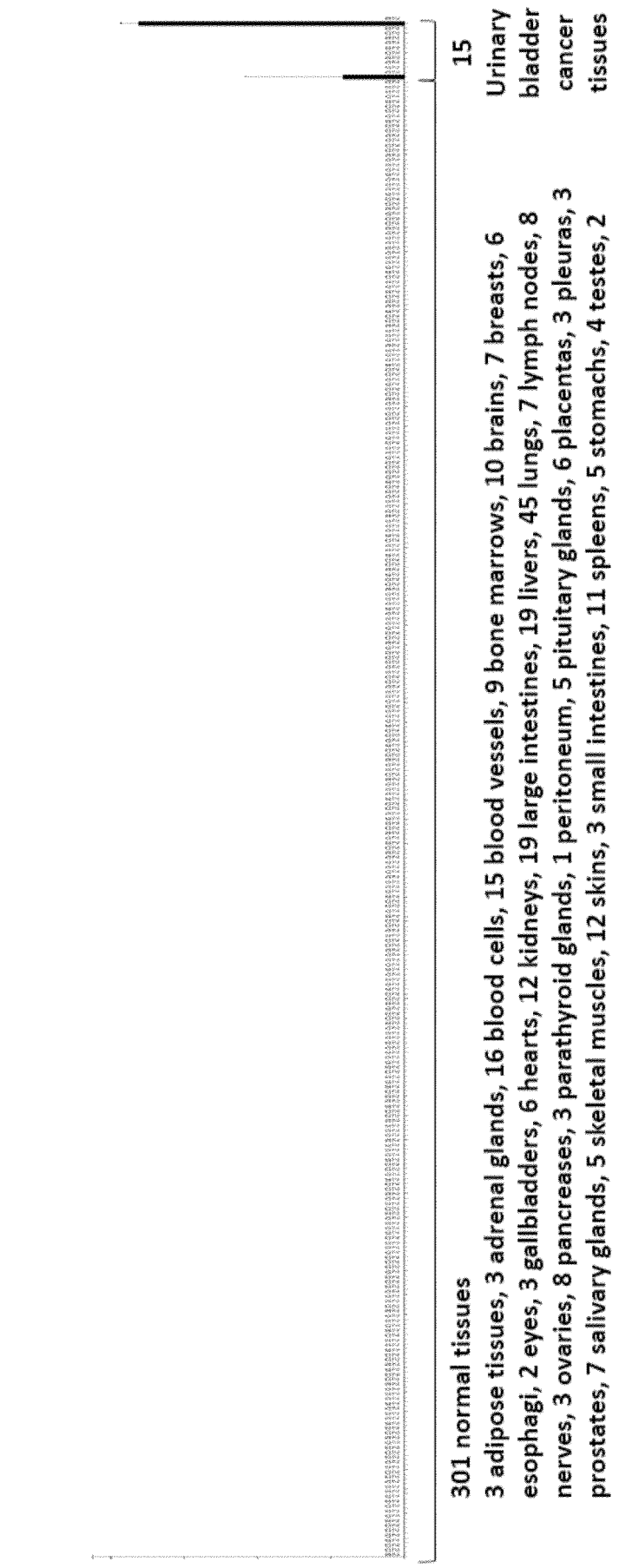

Peptide: FVFEPPPGV (A*02:01)
SEQ ID NO: 113
Relative Presentation [Arbitrary Units]
301 normal tissues
3 adipose tissues, 3 adrenal glands, 16 blood cells, 15 blood vessels, 9 bone marrows, 10 brains, 7 breasts, 6 esophagi, 2 eyes, 3 gallbladders, 6 hearts, 12 kidneys, 19 large intestines, 19 livers, 45 lungs, 7 lymph nodes, 8 nerves, 3 ovaries, 8 pancreases, 3 parathyroid glands, 1 peritoneum, 5 pituitary glands, 6 placentas, 3 pleuras, 3 prostates, 7 salivary glands, 5 skeletal muscles, 12 skins, 3 small intestines, 11 spleens, 5 stomachs, 4 testes, 2 thymi, 2 thyroid glands, 9 tracheas, 6 ureters, 5 uteri, 8 urinary bladders
15
Urinary bladder cancer tissues

Figure 1E

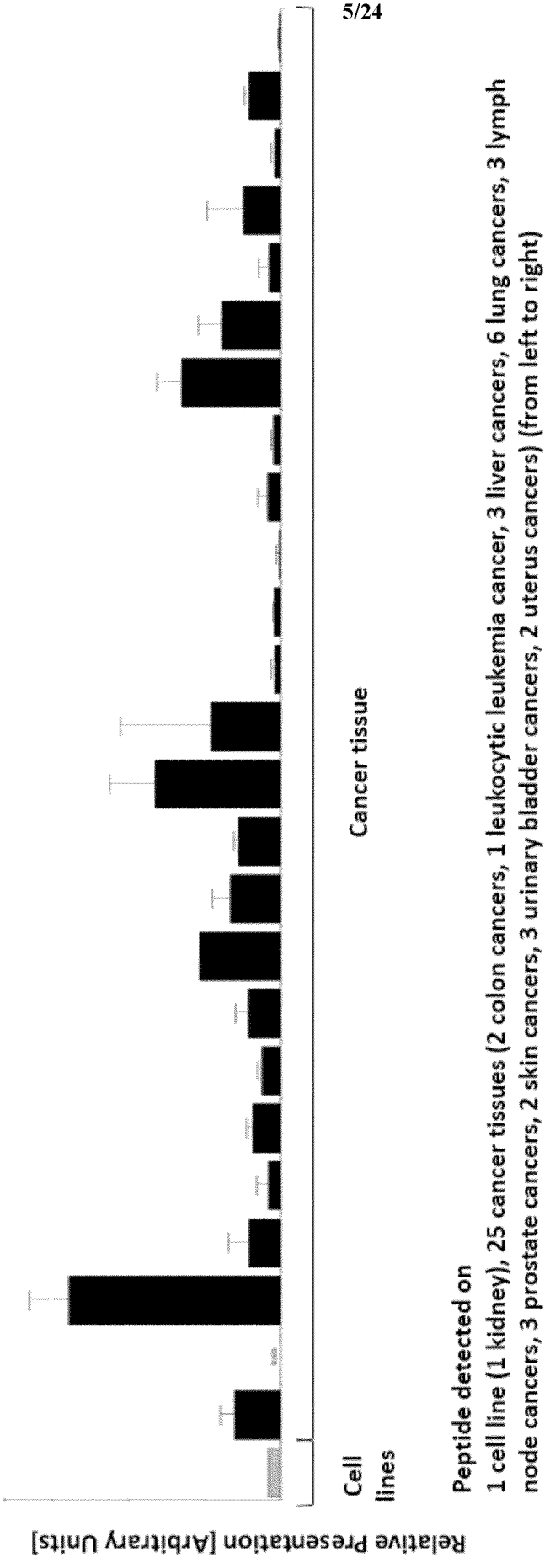
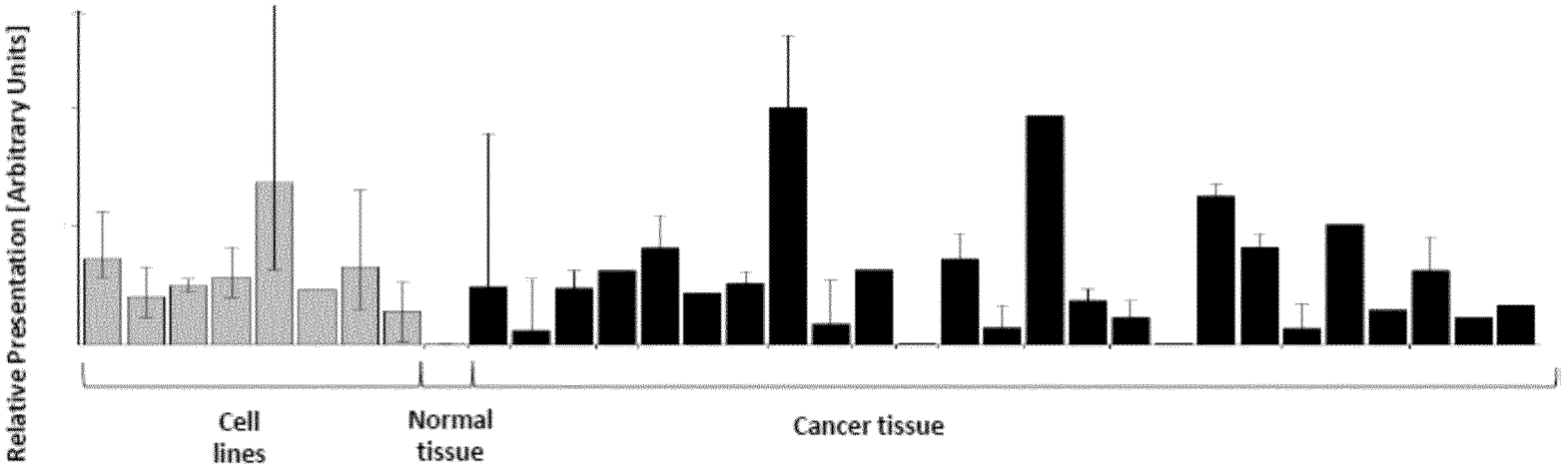

Peptide: YLAPENGYLMEA (A*02:01)
SEQ ID NO: 15
Relative Presentation [Arbitrary Units]
Cell lines
Cancer tissue
Peptide detected on
1 cell line (1 kidney), 25 cancer tissues (2 colon cancers, 1 leukocytic leukemia cancer, 3 liver cancers, 6 lung cancers, 3 lymph node cancers, 3 prostate cancers, 2 skin cancers, 3 urinary bladder cancers, 2 uterus cancers) (from left to right)

Figure 1F

Peptide: GLWHGMFANV (A*02)
SEQ ID NO: 10

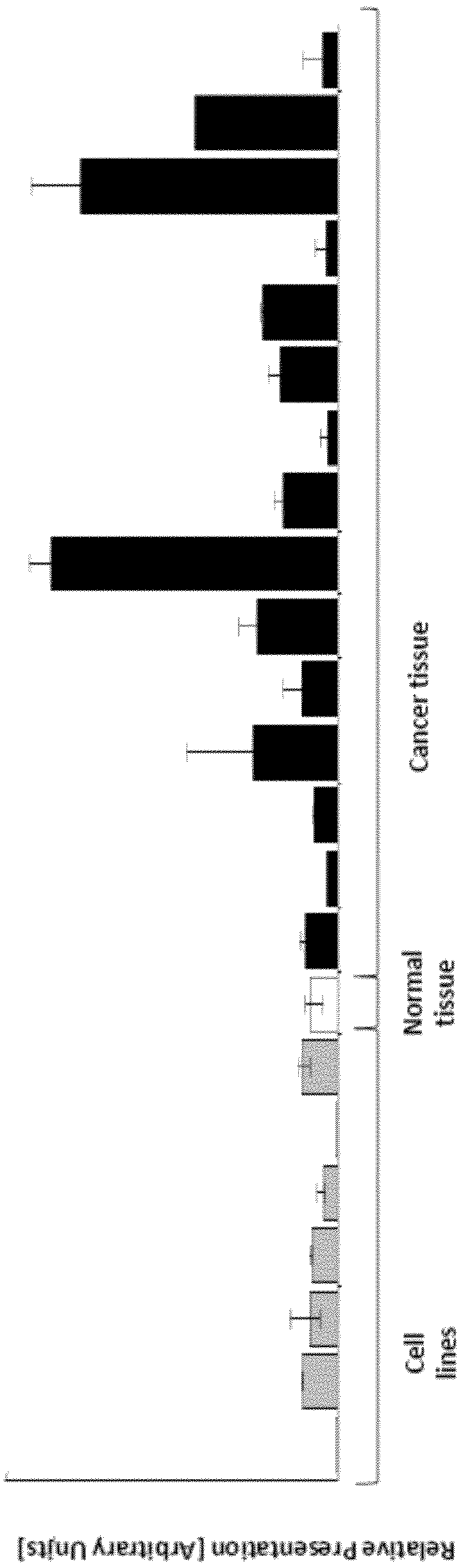


Peptide detected on
8 cell lines (1 head-and-neck, 1 ovary, 2 lymphocytes, 3 skins, 1 head-and-neck), 1 normal tissue (1 spleen), 25 cancer tissues (1 brain cancer, 1 leukocytic leukemia cancer, 1 bone marrow cancer, 1 breast cancer, 3 colon cancers, 2 liver cancers, 1 head-and-neck cancer, 1 skin cancer, 2 ovarian cancers, 2 brain cancers, 7 lung cancers, 3 urinary bladder cancers) (from left to right)

Figure 1G

Peptide: RLSQLEGVNV (A*02)

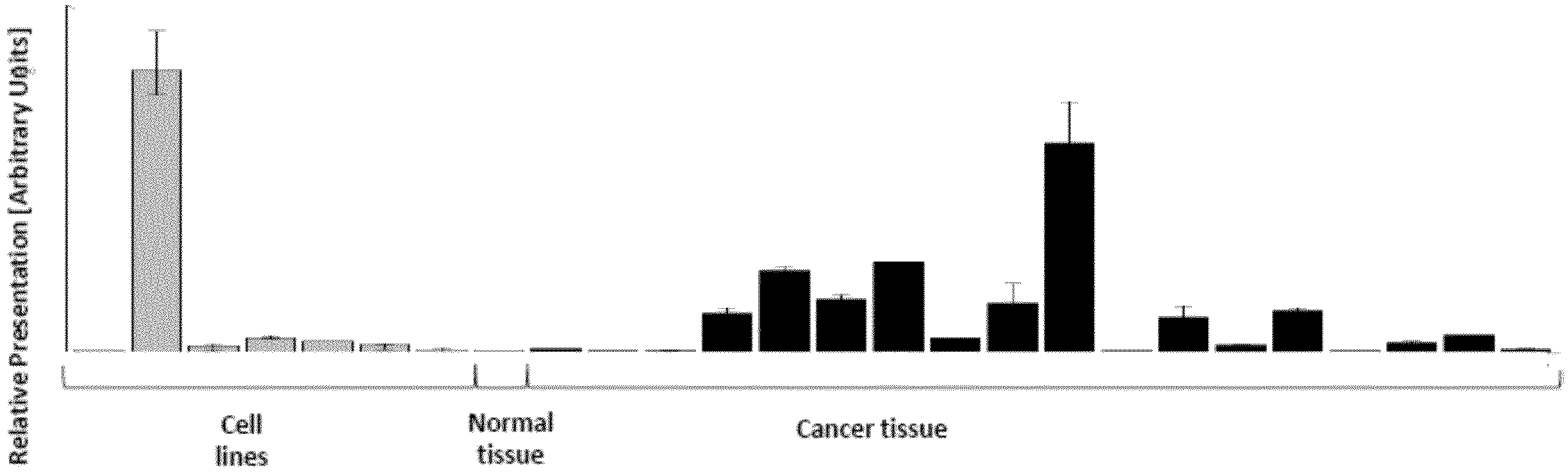
SEQ ID NO: 17



Peptide detected on
7 cell lines (1 lymphocyte, 2 skins, 4 pancreas), 1 normal tissue (1 adrenal gland), 15 cancer tissues (1 liver cancer, 2 head-and-neck cancers, 2 ovarian cancers, 1 lung cancers, 1 kidney cancer, 3 lung cancers, 4 urinary bladder cancers, 1 uterus cancer) (from left to right)

Figure 1H

Peptide: GLALLYSGV (A*02)
SEQ ID NO: 26

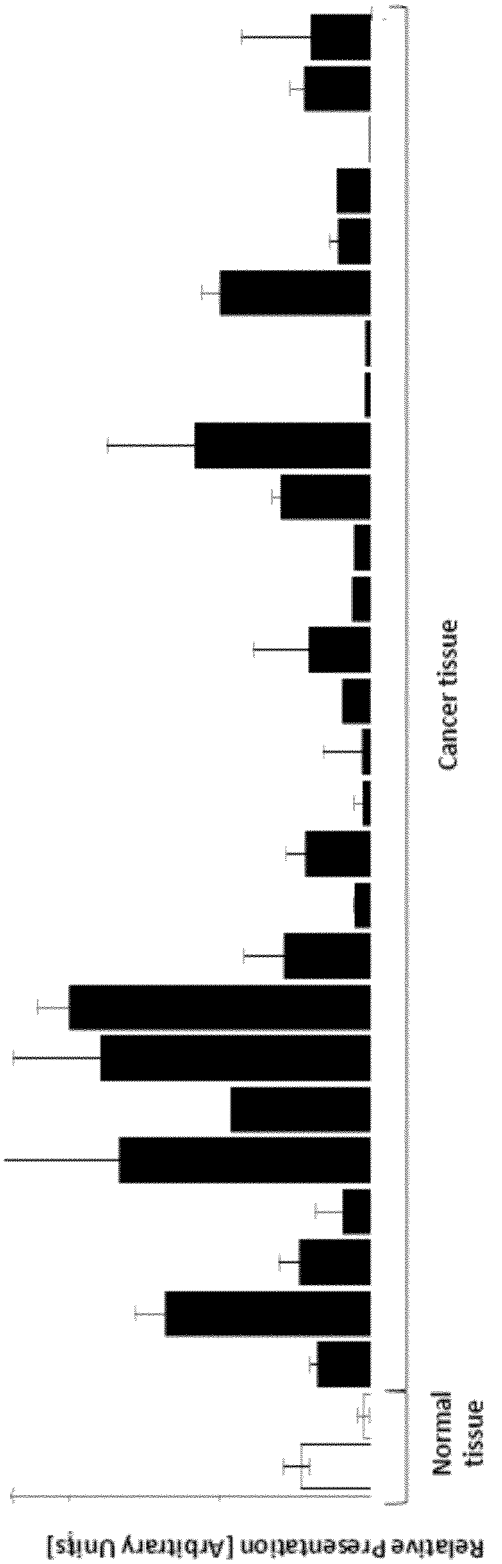


Peptide detected on
7 cell lines (1 urinary bladder, 3 leukocytes, 3 pancreas), 1 normal tissue (1 lung), 18 cancer tissues (1 bone marrow cancer, 1 breast cancer, 1 leukocytic leukemia cancer, 7 liver cancers, 2 skin cancers, 1 stomach cancer, 1 lung cancer, 3 urinary bladder cancers, 1 uterus cancer) (from left to right)

Figure 1I

Peptide: GLIDSLMAYV (A*02)

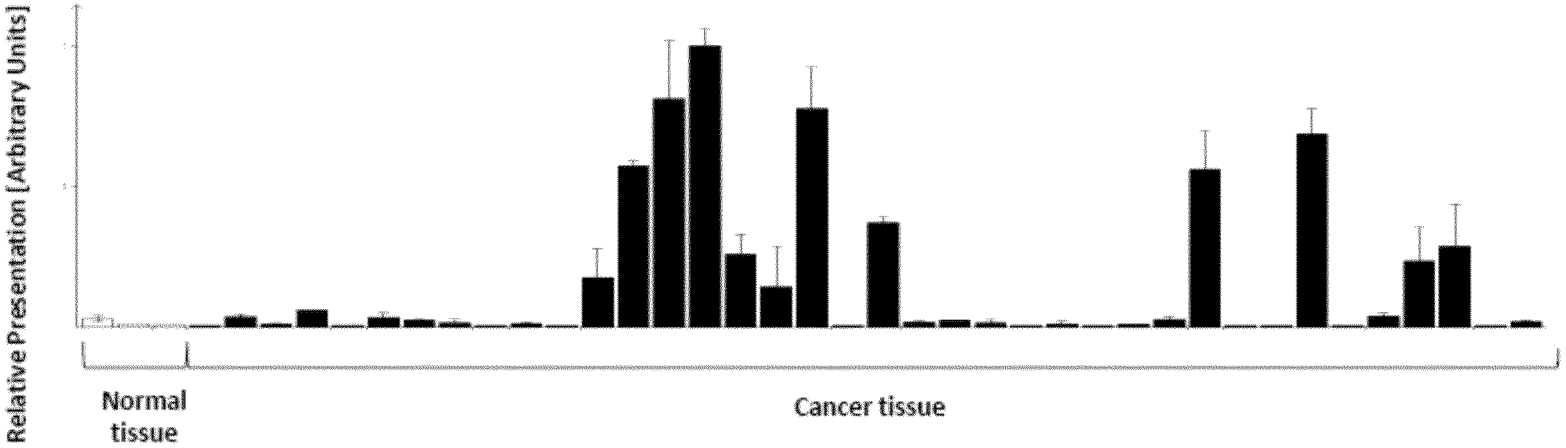
SEQ ID NO: 28



Peptide detected on
2 normal tissues (1 head-and-neck, 1 thymus), 27 cancer tissues (11 head-and-neck cancers, 1 skin cancer, 1 lymph node cancer, 2 esophageal cancers, 9 lung cancers, 3 urinary bladder cancers) (from left to right)

Figure 1J

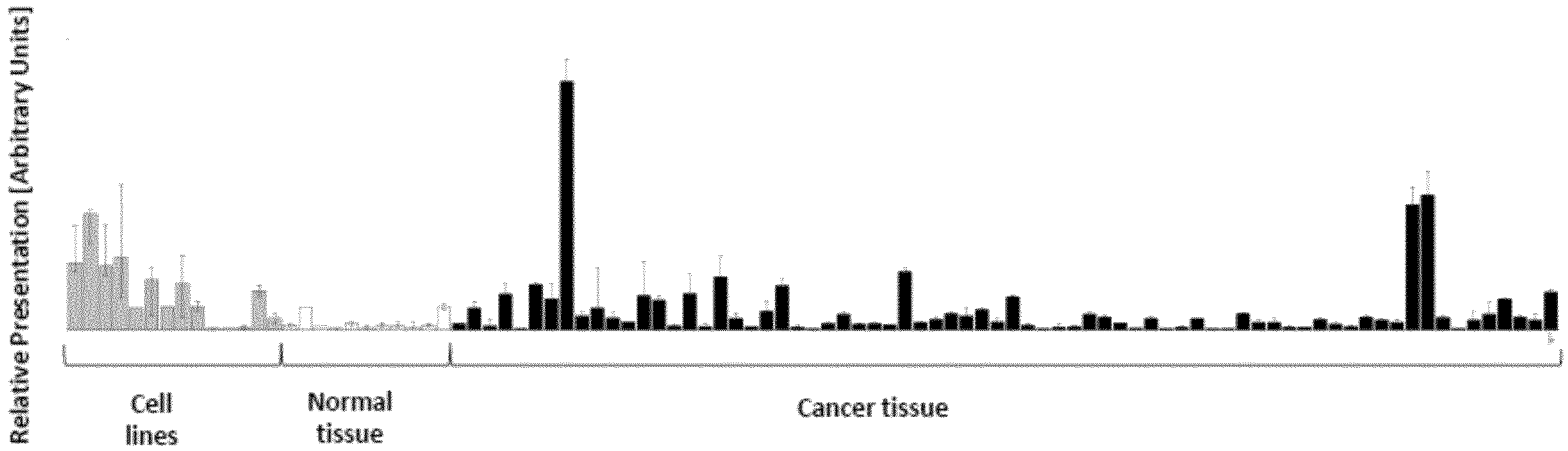
Peptide: SLIGGTNFV (A*02)
SEQ ID NO: 49



Peptide detected on
3 normal tissues (2 lymph nodes, 1 spleen), 38 cancer tissues (1 myeloid cells cancer, 2 leukocytic leukemia cancers, 1 bone marrow cancer, 1 prostate cancer, 3 breast cancers, 1 leukocytic leukemia cancers, 2 colon cancers, 7 liver cancers, 2 skin cancers, 8 lymph node cancers, 1 esophageal cancer, 4 lung cancers, 3 urinary bladder cancers, 2 uterus cancers) (from left to right)

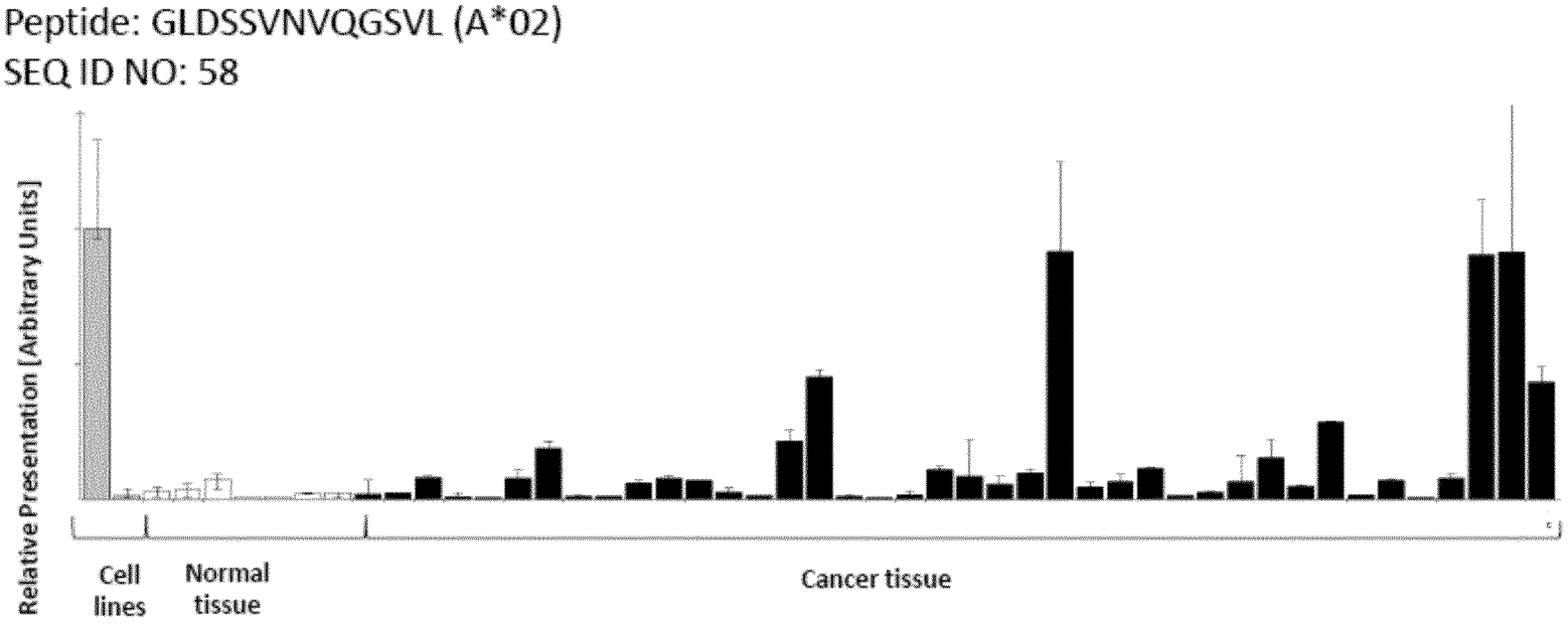
Figure 1K

Peptide: ILLRDLPTL (A*02)
SEQ ID NO: 56



Peptide detected on
14 cell lines (9 lymphocytes, 4 begnin, 1 pancreas), 11 normal tissues (1 esophagus, 2 livers, 3 lungs, 1 parathyroid gland, 1 spleen, 1 stomach, 1 thyroid gland, 1 uterus), 72 cancer tissues (17 prostate cancers, 4 breast cancers, 2 colon cancers, 1 bile duct cancer, 1 gallbladder cancer, 1 liver cancer, 2 head-and-neck cancers, 1 skin cancer, 5 lymph node cancers, 3 ovarian cancers, 2 esophageal cancers, 1 esophagus and stomach cancer, 1 stomach cancer, 20 lung cancers, 1 pancreas cancer, 7 urinary bladder cancers, 3 uterus cancers) (from left to right)

Figure 1L



Peptide detected on
2 cell lines (2 leukocytes), 7 normal tissues (1 adrenal gland, 1 lymph node, 5 spleens), 40 cancer tissues (1 colon cancer, 1 bile duct cancer, 1 liver cancer, 2 head-and-neck cancers, , 2 skin cancers, 4 lymph node cancers, 6 ovarian cancers, 1 esophagus and stomach cancer, 1 stomach cancer, 17 lung cancers, 3 urinary bladder cancers, 1 uterus cancer) (from left to right)

Figure 1M

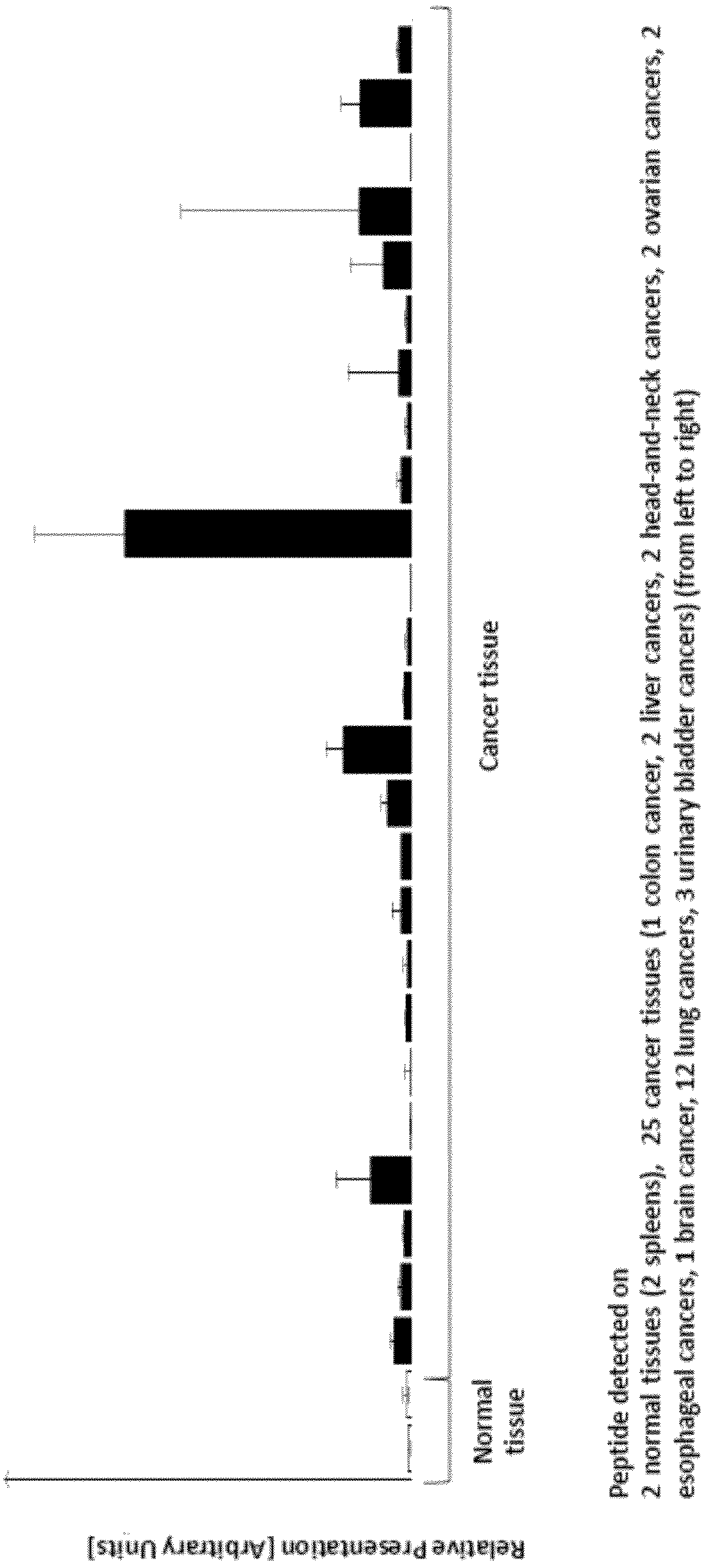
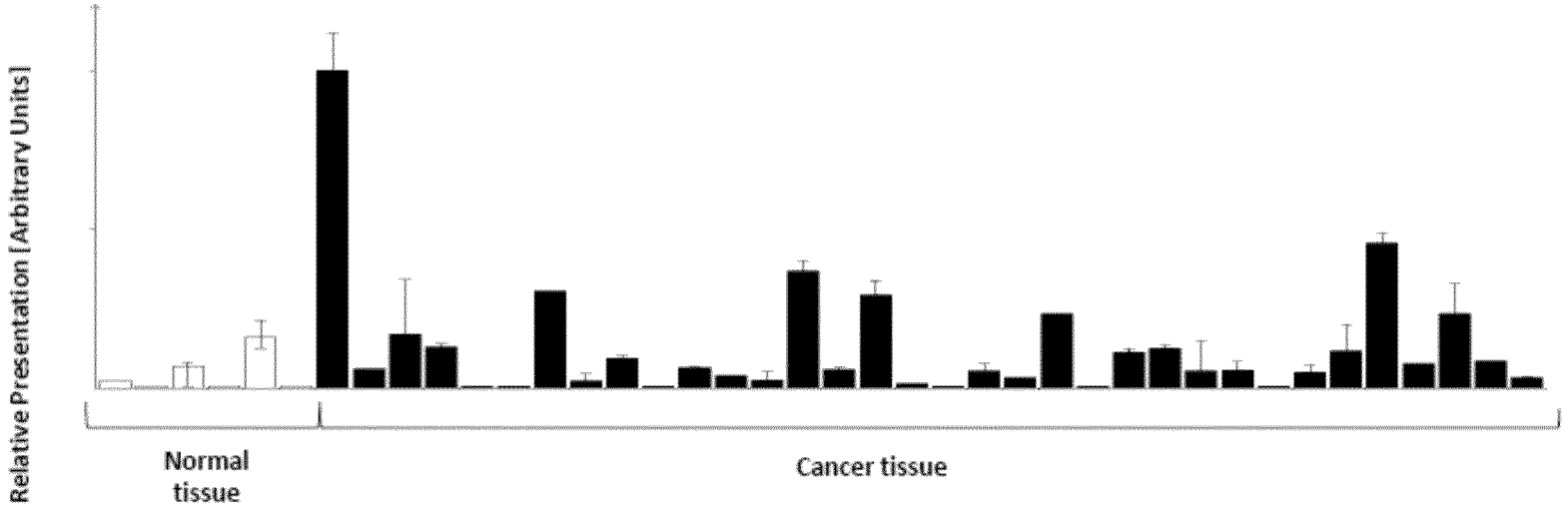

Peptide: HLLDSKVPSV (A*02)
SEQ ID NO: 85
Relative Presentation [Arbitrary Units]
Normal tissue
Cancer tissue
Peptide detected on
2 normal tissues (2 spleens), 25 cancer tissues (1 colon cancer, 2 liver cancers, 2 head-and-neck cancers, 2 ovarian cancers, 2 esophageal cancers, 1 brain cancer, 12 lung cancers, 3 urinary bladder cancers) (from left to right)

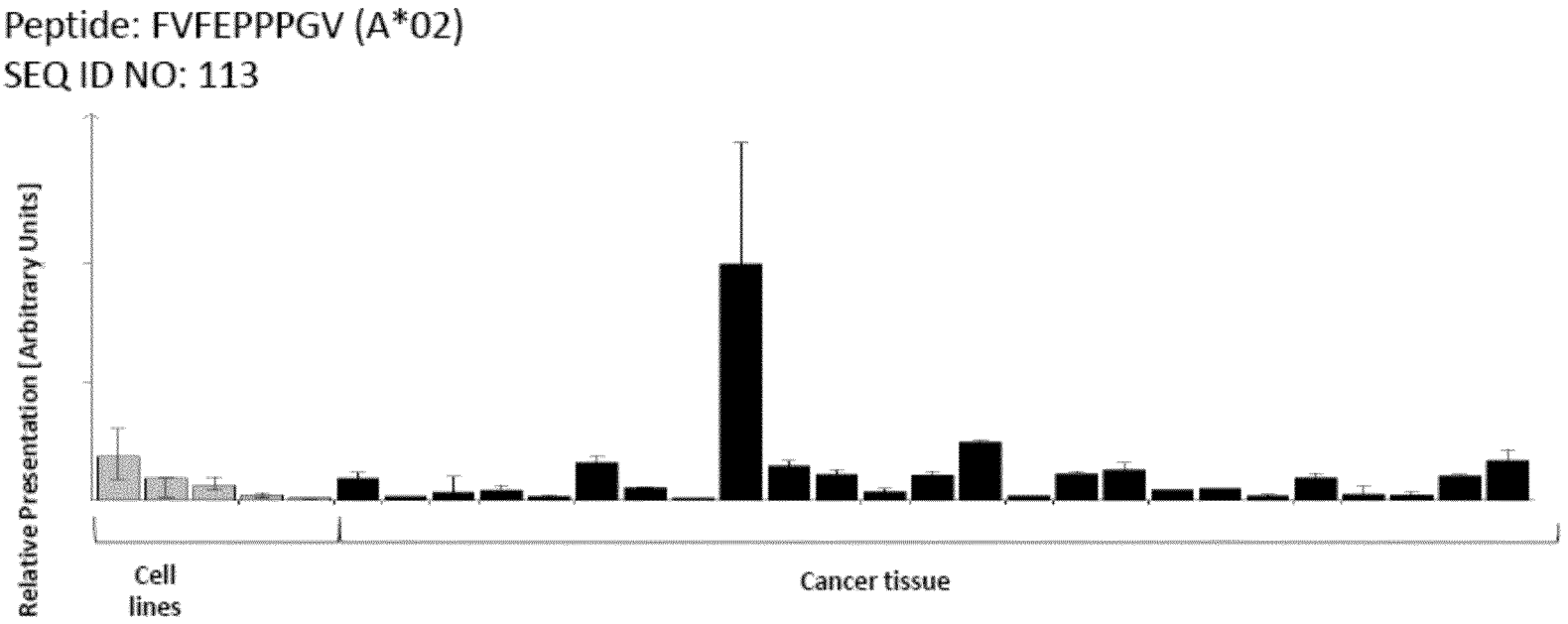
Figure 1N

Peptide: ALIGDDVGL (A*02)
SEQ ID NO: 99



Peptide detected on
6 normal tissues (2 leukocyte samples, 1 lymphocytes, 1 pancreas, 1 spleen, 1 thymus), 34 cancer tissues (1 myeloid cells cancer, 1 bone marrow cancer, 2 leukocytic leukemia cancers, 2 colon cancers, 1 colorectal cancer, 1 gallbladder cancer, 4 head-and-neck cancers, 2 skin cancers, 2 lymph node cancers, 2 ovarian cancers, 1 esophageal cancer, 1 stomach cancer, 9 lung cancers, 4 urinary bladder cancers, 1 uterus cancer) (from left to right)

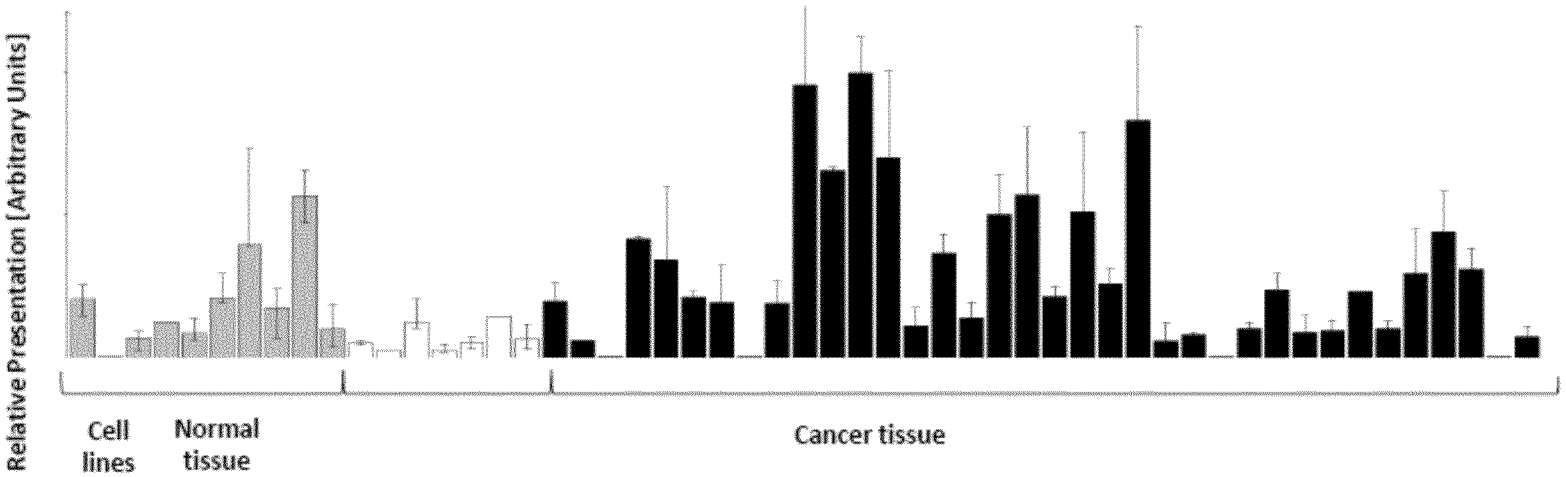
Figure 10



Peptide detected on
5 cell lines (1 skin, 1 urinary bladder, 1 ovary, 2 pancreas), 25 cancer tissues (1 prostate cancer, 1 breast cancer, 1 liver cancer, 2 head-and-neck cancers, 6 skin cancers, 1 lymph node cancer, 2 pancreas cancers, 1 brain cancer, 2 stomach cancers, 4 lung cancers, 4 urinary bladder cancers) (from left to right)

Figure 1P

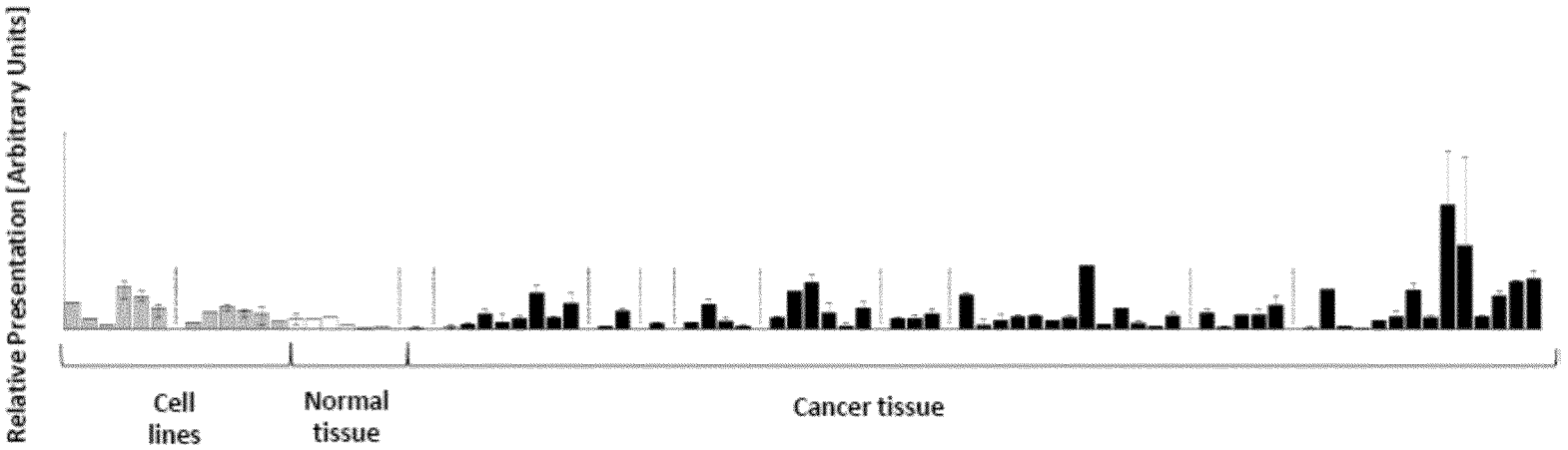
Peptide: QLQGYLRSV (A*02)
SEQ ID NO: 121



Peptide detected on
10 cell lines (1 ovary, 2 primary cultures, 1 lymphocytes, 1 leukocytes, 1 kidney, 2 rectum, 2 pancreas), 7 normal tissues (1 adrenal gland, 1 leukocyte sample, 3 bone marrows, 1 colon, 1 trachea), 36 cancer tissues (1 cecum cancer, 1 myeloid cells cancer, 1 leukocytic leukemia cancer, 4 colon cancers, 1 rectum cancer, 1 bile duct cancer, 5 liver cancers, 6 head-and-neck cancers, 1 lymph node cancer, 1 esophageal cancer, 1 pancreas cancer, 1 brain cancer, 9 lung cancers, 1 urinary bladder cancer, 2 uterus cancers) (from left to right)

Figure 1Q

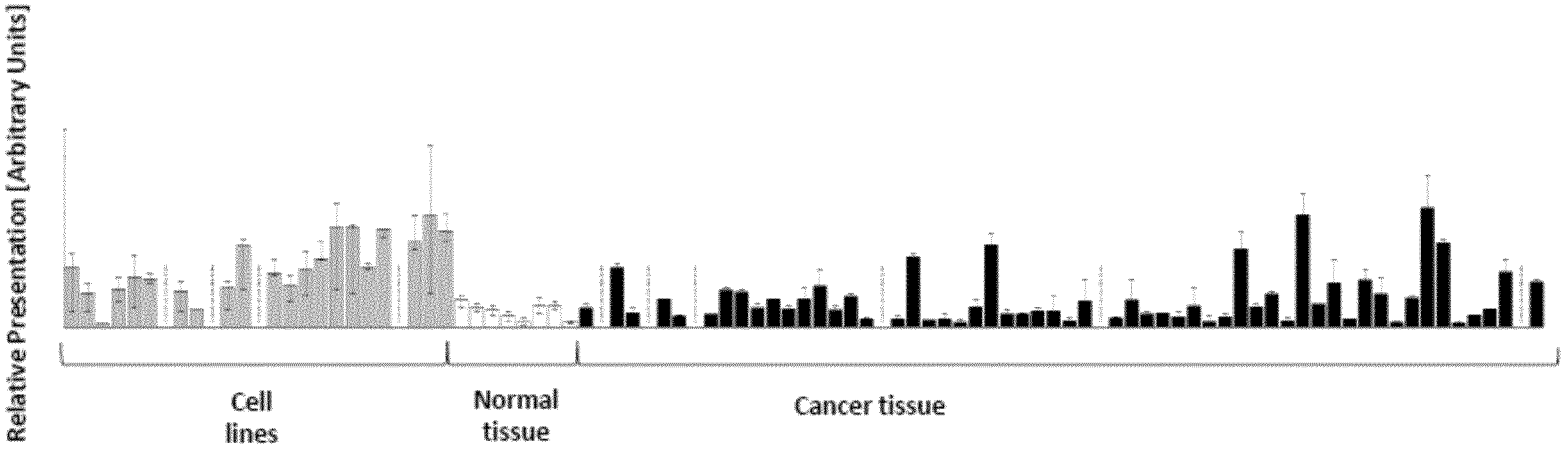
Peptide: ILEPSLYTV (A*02)
SEQ ID NO: 122



Peptide detected on
13 cell lines (1 kidney, 2 leukocytes, 1 skin, 9 pancreas), 10 normal tissues (1 adrenal gland, 5 colons, 1 liver, 2 lungs, 1 lymph node), 63 cancer tissues (2 myeloid cells cancers, 2 leukocytic leukemia cancers, 1 bone marrow cancer, 2 prostate cancers, 4 breast cancers, 2 leukocytic leukemia cancers, 1 colon cancer, 1 rectum cancer, 1 bile duct cancer, 7 liver cancers, 3 head-and-neck cancers, 5 skin cancers, 2 lymph node cancers, 2 ovarian cancers, 1 esophageal cancer, 1 pancreas cancer, 5 brain cancers, 4 stomach cancers, 5 lung cancers, 3 kidney cancers, 1 lung cancer, 4 urinary bladder cancers, 4 uterus cancers) (from left to right)

Figure 1R

Peptide: YLEPKLTQV (A*02)
SEQ ID NO: 129



Peptide detected on
25 cell lines (1 head-and-neck, 1 ovary, 1 PBMCs, 2 lymphocytes, 3 skins, 1 kidney, 16 pancreas), 8 normal tissues (3 adrenal glands, 1 bone marrow, 1 head-and-neck and salivary gland, 1 kidney, 1 liver, 1 spleen), 62 cancer tissues (1 myeloid cells cancer, 1 bone marrow cancer, 1 leukocytic leukemia cancer, 3 prostate cancers, 1 breast cancer, 1 colon cancer, 2 bile duct cancers, 6 liver cancers, 3 head-and-neck cancers, 5 skin cancers, 2 lymph node cancers, 3 ovarian cancers, 2 esophageal cancers, 2 brain cancers, 1 stomach cancer, 11 lung cancers, 1 kidney cancer, 4 lung cancers, 6 urinary bladder cancers, 6 uterus cancers) (from left to right)

Figure 2A

Gene: TMPRSS4
Peptide: ILLQASVQV
SEQ ID NO: 1

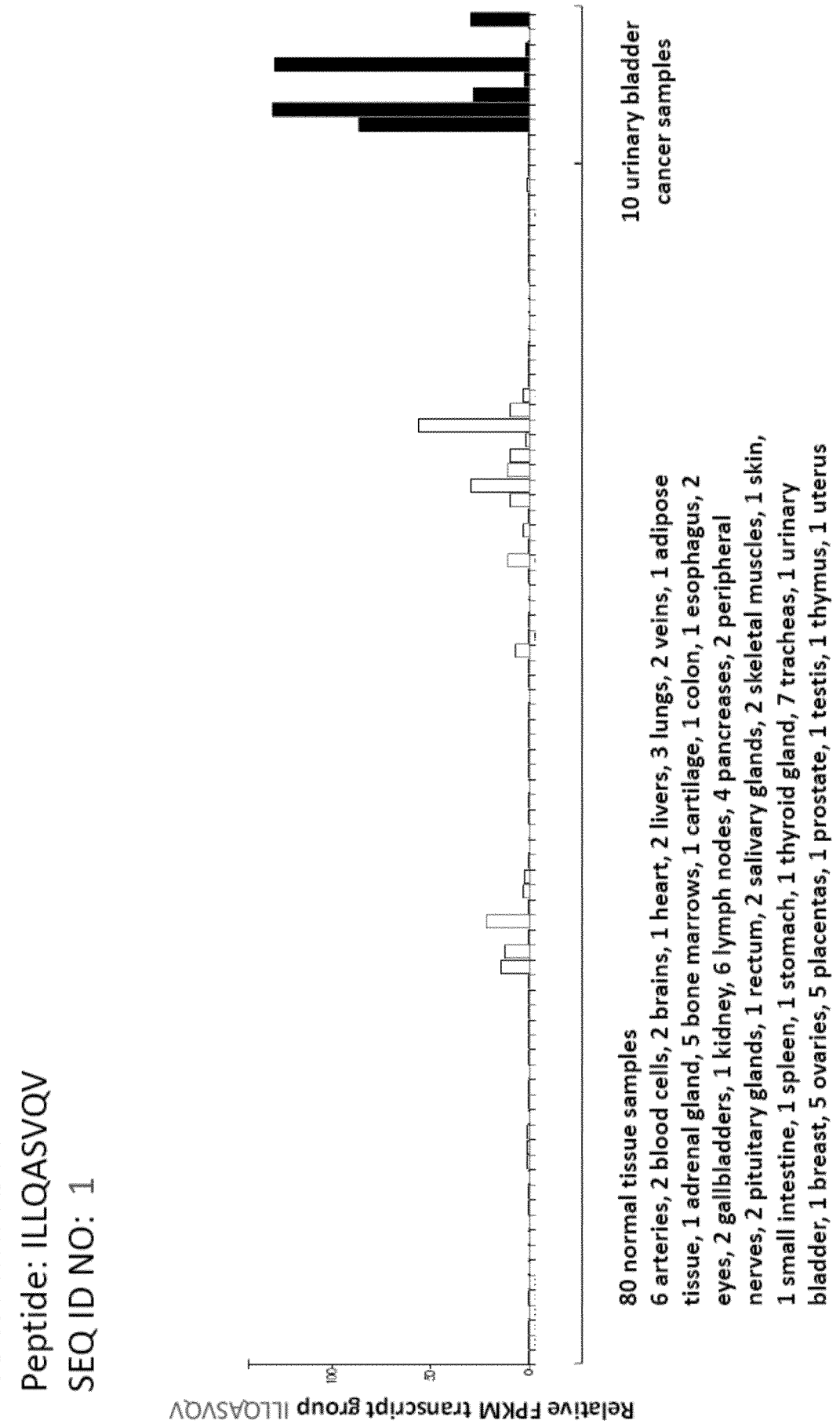


Figure 2B

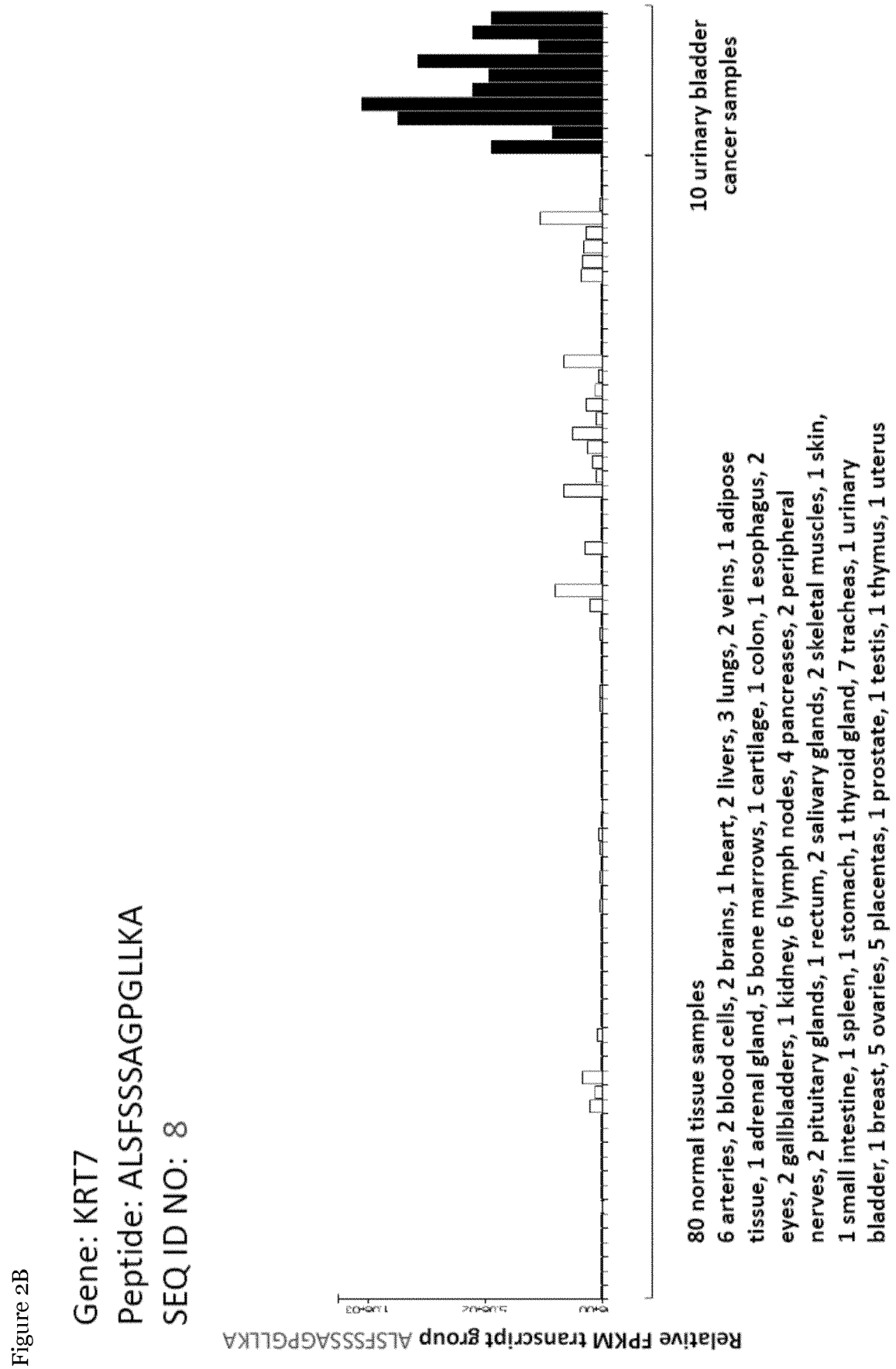

Gene: KRT7
Peptide: ALSFSSSAGPGLLKA
SEQ ID NO: 8
Relative FPKM transcript group ALSFSSSAGPGLLKA
80 normal tissue samples
6 arteries, 2 blood cells, 2 brains, 1 heart, 2 livers, 3 lungs, 2 veins, 1 adipose tissue, 1 adrenal gland, 5 bone marrows, 1 cartilage, 1 colon, 1 esophagus, 2 eyes, 2 gallbladders, 1 kidney, 6 lymph nodes, 4 pancreases, 2 peripheral nerves, 2 pituitary glands, 1 rectum, 2 salivary glands, 2 skeletal muscles, 1 skin, 1 small intestine, 1 spleen, 1 stomach, 1 thyroid gland, 7 tracheas, 1 urinary bladder, 1 breast, 5 ovaries, 5 placentas, 1 prostate, 1 testis, 1 thymus, 1 uterus
10 urinary bladder cancer samples

Figure 2C

Gene: CYP4F22

Peptide: AMAELRVVV

SEQ ID NO: 11

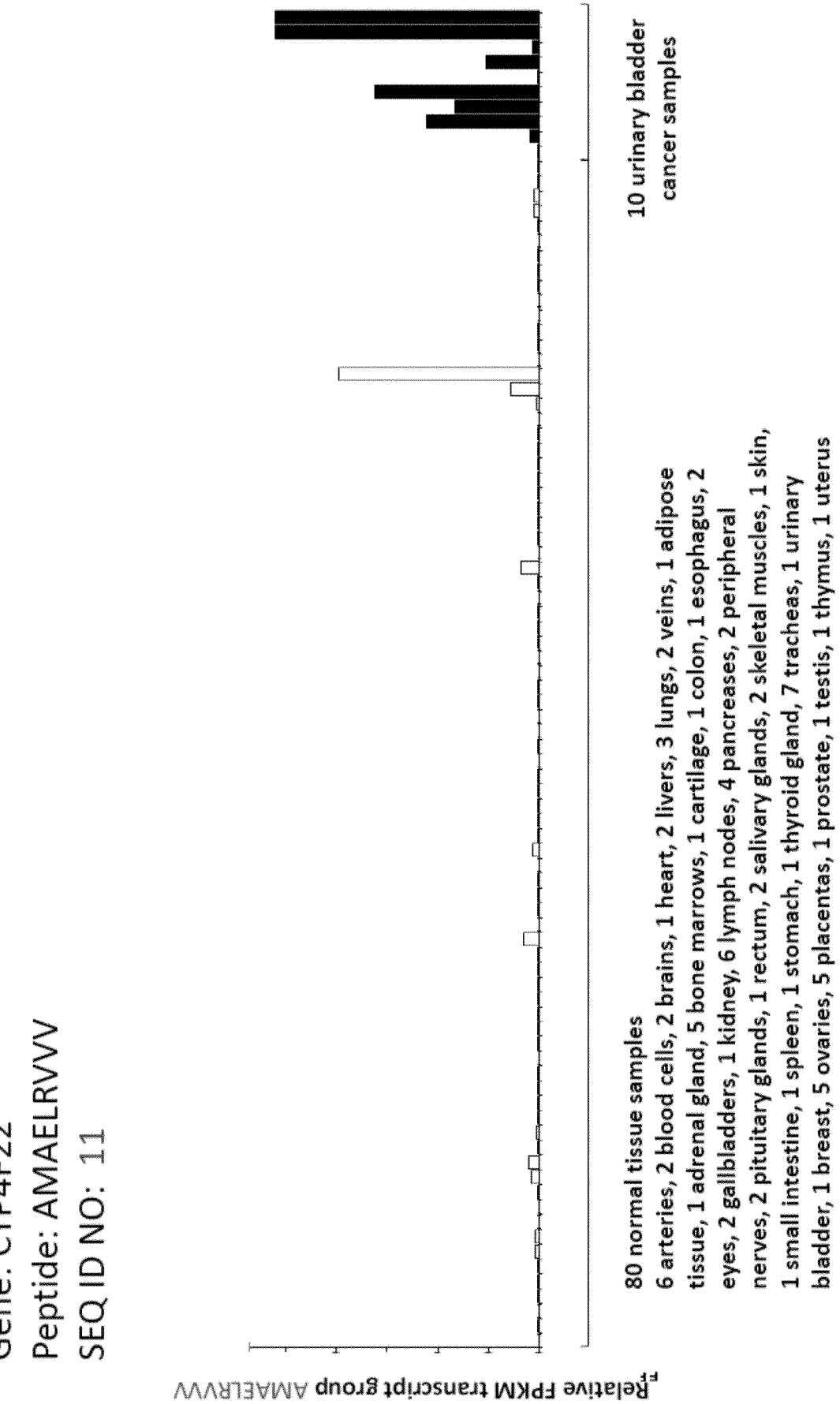


Figure 2D

Gene: DHRS2
Peptide: SIAAYNPVV
SEQ ID NO: 18

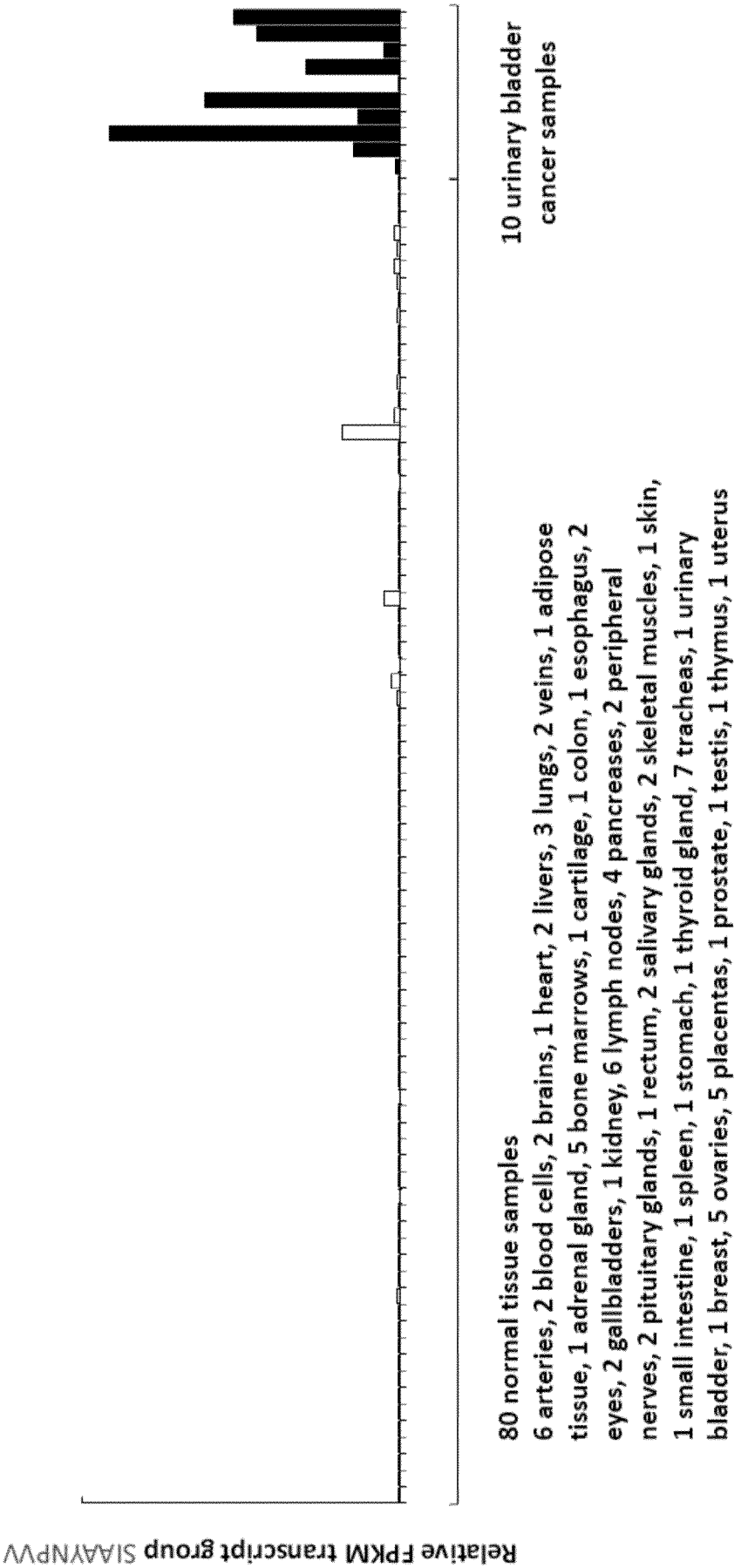
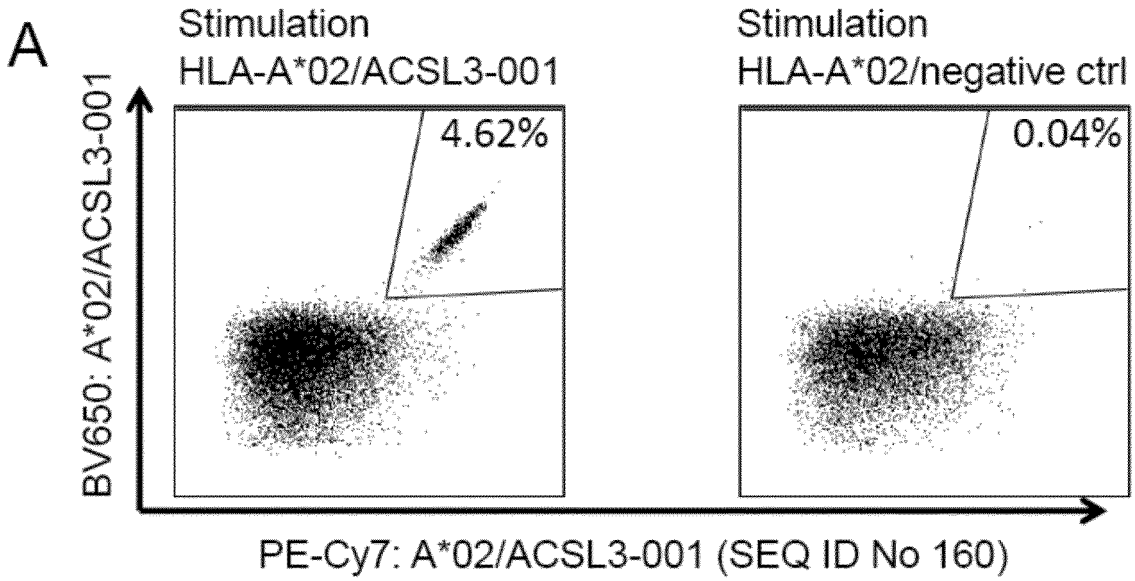


Figure 3


A
Stimulation
HLA-A*02/ACSL3-001
4.62%
Stimulation
HLA-A*02/negative ctrl
0.04%
BV650: A*02/ACSL3-001
PE-Cy7: A*02/ACSL3-001 (SEQ ID No 160)

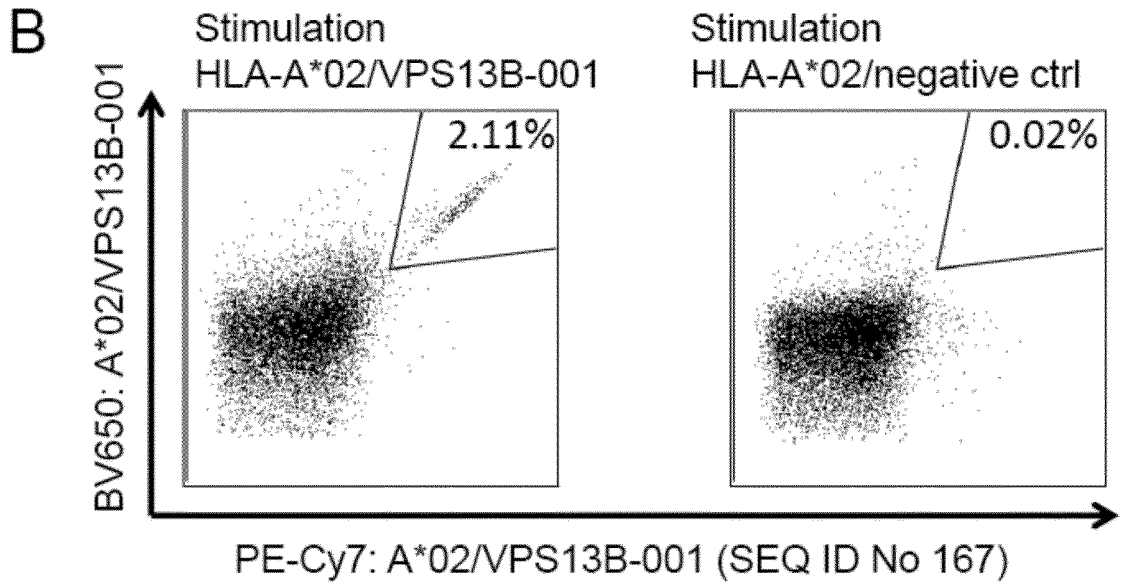
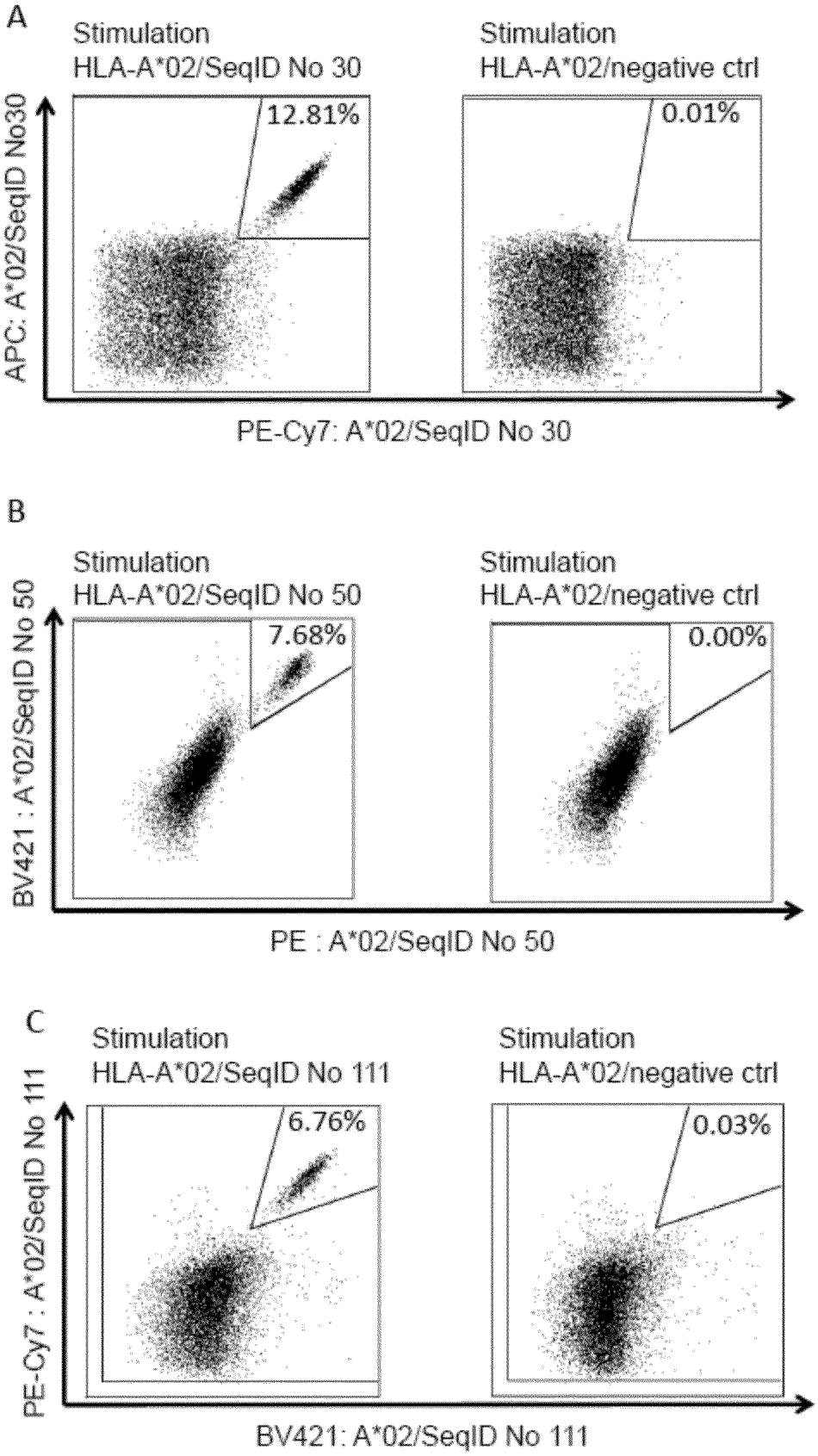

B
Stimulation
HLA-A*02/VPS13B-001
2.11%
Stimulation
HLA-A*02/negative ctrl
0.02%
BV650: A*02/VPS13B-001
PE-Cy7: A*02/VPS13B-001 (SEQ ID No 167)

Figure 4


A
Stimulation
HLA-A*02/SeqID No 30
Stimulation
HLA-A*02/negative ctrl
12.81%
0.01%
APC: A*02/SeqID No30
PE-Cy7: A*02/SeqID No 30
B
Stimulation
HLA-A*02/SeqID No 50
Stimulation
HLA-A*02/negative ctrl
7.68%
0.00%
BV421 : A*02/SeqID No 50
PE : A*02/SeqID No 50
C
Stimulation
HLA-A*02/SeqID No 111
Stimulation
HLA-A*02/negative ctrl
6.76%
0.03%
PE-Cy7 : A*02/SeqID No 111
BV421: A*02/SeqID No 111