

## Supplementary Material

**Supplementary Table 1** Differentially expressed genes (DEGs) from RNAseq data between control SKOV3-luc cells and SKOV3-luc cells treated for 72 h with cisplatin at different concentrations (10  $\mu$ M and 30  $\mu$ M) (Control vs Cis 10  $\mu$ M or 30  $\mu$ M).

**Supplementary Figure 1** (a) Dynamic light scattering diameter distribution (by number) of Cis-NP nanoparticles (dH= 70 $\pm$ 30 nm, Pdl = 0.49; PBS 1X pH 7.4, 20°C). (b) Dynamic light scattering diameter distribution (by number) of NP nanoparticles (dH= 140 $\pm$ 9 nm, Pdl = 0.33; PBS 1X pH 7.4, 20°C).

**Supplementary Figure 2** Flow cytometry data analysis: a sequential gating strategy allowed excluding dead cells based on FSC-A and SSC-A and to selected singlets based on FSC-A and FSC-H. Histograms show fluorescence intensity of Cy-5.5 within the singlet's populations.

**Supplementary Figure 3** Heat map of RNAseq expression data showing the genes that were differentially regulated following treatment with cisplatin 10  $\mu$ M or 30  $\mu$ M.

**Supplementary Figure 4** Heat map of RNAseq expression data showing the genes that were differentially regulated following treatment with cisplatin loaded NP 10  $\mu$ M or 30  $\mu$ M.

**Supplementary Figure 5** Histological analysis of tumor tissues of SKOV3-luc cells' xenografts. (a) Representative images of hematoxylin and eosin staining and immunohistochemical staining for E-cadherin, vimentin, Ki67 and Multi-Cytokeratin (MCK) of one representative tumor section of an intraperitoneal nodule from the control group of the study. (b) Representative images of hematoxylin and eosin staining of one representative tumor section at the *omentum* from the control group of the study.





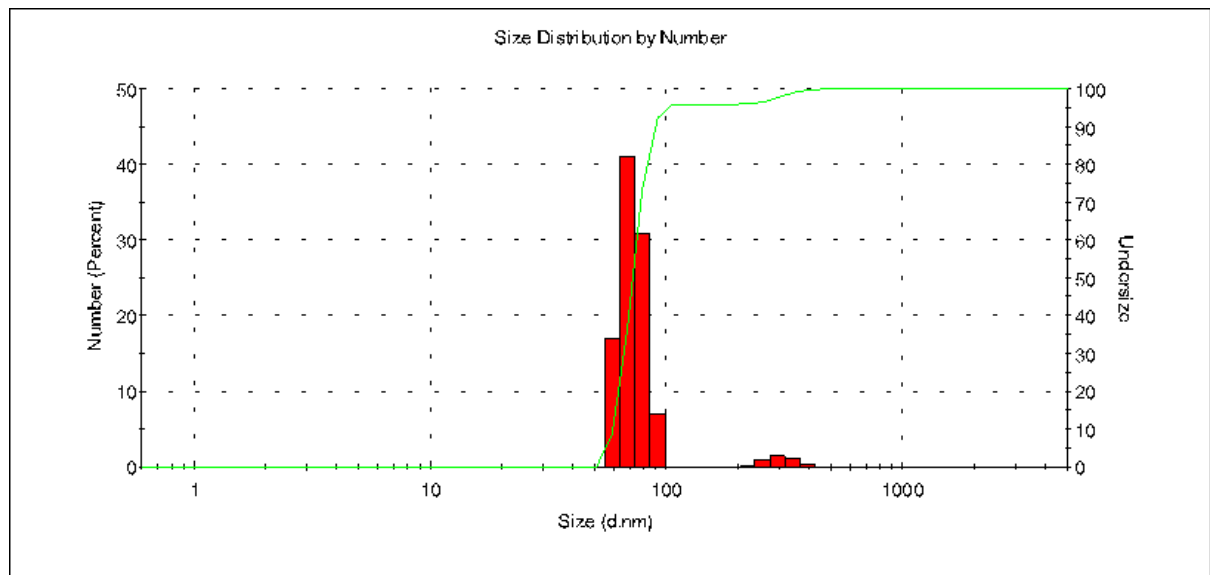




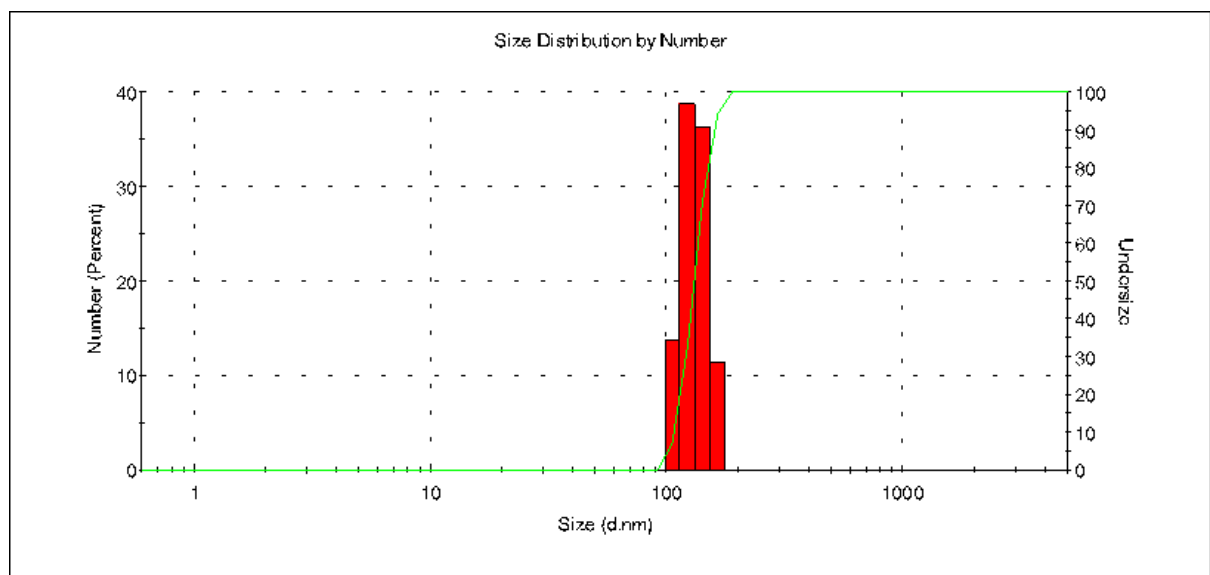


KCNJ8	potassium inwardly rectifying channel subfamily J member 8	KCNJ8	1.6	1,166.09	3,659	1,276.32	Plasma Membrane	ion channel
SDK1	sidelick cell adhesion molecule 1	SDK1	1.601	1,366.21	3.25	6,266.73	Plasma Membrane	other
TMEM132B	transmembrane protein 132B	TMEM132B	1.604	1,246.36	1,783	2,426.71	Other	other
LUM	lumican	LUM	1.614	0.000046	4,001	3,396.24	Extracellular Space	other
CLEC19A	C-type lectin domain containing 19A	CLEC19A	1.614	0.000033	6.16	1,796.37	Other	other
SCDP1	stearyl-CoA desaturase pseudogene 1	SCDP1	1.618	0.00411	2,809	0.00000151	Other	other
KLHL4	kelch like family member 4	KLHL4	1.637	1,726.17	3,183	2,426.57	Cytoplasm	other
CXCL12	C-X-C motif chemokine ligand 12	CXCL12	1.645	0.000084	2,709	0.00000117	Extracellular Space	cytokine
CAPN6	calpain 6	CAPN6	1.65	1,272.23	3,598	4,346.62	Cytoplasm	peptidase
KCTD16	potassium channel tetramerization domain containing 16	KCTD16	1.651	1,485.10	1,562	6,326.22	Plasma Membrane	other
MPP85BP5	mitochondrial ribosomal protein S36 pseudogene 5	MPP85BP5	1.651	0.00854	5,181	0.0000146	Other	other
IGKV1OR-2	immunoglobulin kappa variable 1'OR-2 (pseudogene)	IGKV1OR-2	1.663	7,366.12	1,874	4,986.15	Other	other
COL3A1	collagen type III alpha 1 chain	COL3A1	1.667	0.00613	5,891	1,326.35	Extracellular Space	other
CDH17	cadherin 17	CDH17	1.688	0.00000256	2,904	6,776.15	Plasma Membrane	transporter
CSLN2	cerberin 2 precursor	CSLN2	1.694	0.0000384	3,073	1,456.13	Extracellular Space	other
TSPN17	telomerase 7	TSPN17	1.695	0.000189	6,096	2,716.13	Plasma Membrane	other
CASC18	cancer susceptibility 18	CASC18	1.695	0.0146	1,391	0.0356	Other	other
MROH9	maestro heat like repeat family member 9	MROH9	1.695	0.027	1,842	0.0124	Other	other
SPOCK3	SPARC (osteonectin), ovicv and kazal like domains proteoglycan 3	SPOCK3	1.696	6,396.10	2,768	1,556.22	Extracellular Space	other
FREM2	FRAS1 related extracellular matrix 2	FREM2	1.701	0.0000137	4,742	1,016.23	Extracellular Space	other
ENDK1	ectoderm-NOX disulfide-thiol exchanger 1	ENDK1	1.718	8,166.17	2,723	1,426.36	Plasma Membrane	other
FEB3	FET domain cadherin 3	FEB3	1.718	6,966.23	3,226	2,556.57	Plasma Membrane	other
IGKV1OR-3	immunoglobulin kappa variable 1'OR-3 (pseudogene)	IGKV1OR-3	1.719	1,496.10	2,101	5,256.15	Other	other
SLIT3	slit guidance ligand 3	SLIT3	1.721	3,546.12	2,627	1,456.23	Extracellular Space	other
IGKV1OR-2	immunoglobulin kappa variable 1'OR-2 (pseudogene)	IGKV1OR-2	1.725	6,956.14	1,805	1,486.15	Other	other
miR-23	miR-23	MIR23A	1.749	0.0000094	2,725	6,786.10	Cytoplasm	microRNA
CLSTN2	calyculin 2	CLSTN2	1.766	0.00000234	1,802	0.00000067	Plasma Membrane	transporter
CTNND2	catenin domain 2	CTNND2	1.768	3,496.29	3,217	1,466.79	Plasma Membrane	other
CRTRC1	cartilage acidic protein 1	CRTRC1	1.769	0.000000221	2,721	1,866.14	Extracellular Space	other
COL1A2	collagen type I alpha 2 chain	COL1A2	1.772	1,396.23	3,003	1,496.64	Extracellular Space	other
CHN2	chimerin 2	CHN2	1.78	9,796.10	3,273	8,886.23	Cytoplasm	other
SPANX1 (includes others)	SPANX family member C	SPANX1	1.783	4,296.08	1,883	5,536.09	Nucleus	other
FAM153C	family with sequence similarity 153 member C	FAM153C	1.809	0.00103	3,311	2,846.08	Other	other
miR-27	miR-27	MIR27A	1.82	0.00000106	2,481	6,016.11	Cytoplasm	microRNA
GABRP	gamma-aminobutyric acid type A receptor $\rho 1$ subunit	GABRP	1.834	0.00362	5,169	7,116.15	Plasma Membrane	ion channel
ANGPT1	angiotensin 1	ANGPT1	1.85	0.0000635	3,642	2,036.10	Extracellular Space	growth factor
GP6A	glycoprotein 6A	GP6A	1.889	5,236.13	3,83	7,876.35	Plasma Membrane	ion channel
ANK2	ankyrin 2	ANK2	1.897	2,916.42	3,615	9,256.109	Plasma Membrane	other
CHRD1	chordin like 1	CHRD1	1.898	0.0252	6,888	0.000000313	Extracellular Space	other
ETK1	ETK transcriptional coactivator and phosphatase 1	ETK1	1.9	0.017	3,396	0.0000039	Nucleus	phosphatase
LOC1957642	uncharacterized LOC1957642	AC037119.1	1.919	0.0317	1,652	0.0495	Other	other
NCAM2	neural cell adhesion molecule 2	NCAM2	1.929	1,046.16	3,278	5,126.36	Plasma Membrane	other
FAM153A,FAM153B	family with sequence similarity 153 member B	FAM153A	1.93	6,896.08	3,441	6,886.13	Other	other
STMN2	stathmin 2	STMN2	1.94	0.0242	1,919	0.0199	Plasma Membrane	other
PS2	pskectin and Sac7 domain containing 2	PS2	1.954	9,796.08	2,831	1,096.13	Plasma Membrane	other
PPP1R1AP2	protein phosphatase 1 regulatory inhibitor subunit 1A pseudogene 2	PPP1R1AP2	1.958	0.0237	3,148	0.0000071	Other	other
SOX5	SRY-box transcription factor 5	SOX5	1.967	0.00000149	4,696	5,186.20	Nucleus	transcription regulator
HDHD5-AS1	HDHD5 antisense RNA 1	CECR5-AS1	2.011	0.024	2,036	0.0175	Other	other
RPL37A	ribosomal protein L37 pseudogene 4	RPL37A	2.029	0.03	2,939	0.00443	Other	other
ATP1A2	ATPase Na <sup>+</sup> /K <sup>+</sup> transporting subunit alpha 2	ATP1A2	2.043	0.000000478	2,695	1,156.10	Plasma Membrane	transporter
SDK2	sidelick cell adhesion molecule 2	SDK2	2.057	2,146.27	2,84	6,66.44	Plasma Membrane	other
OR5V1	olfactory receptor family 5 subfamily V member 1	OR5V1	2.087	0.000025	3,858	0.00000294	Plasma Membrane	G-protein coupled receptor
KEL	Kel metallo-endopeptidase (Kel blood group)	KEL	2.117	0.0293	6,568	0.00000771	Plasma Membrane	peptidase
RNU6-2SP	---	RNU6-2SP	2.197	0.0308	2,245	0.0214	Other	other
RPS6P12	ribosomal protein S6 pseudogene 12	RPS6P12	2.232	0.00226	1,454	0.0318	Other	other
PTPRC	protein tyrosine phosphatase receptor type C	PTPRC	2.265	0.000000291	2,81	5,256.09	Plasma Membrane	phosphatase
CCKAR	cholecystokinin A receptor	CCKAR	2.344	0.0054	1,732	0.0218	Plasma Membrane	G-protein coupled receptor
FAM15D	family with sequence similarity 15 member D	FAM15D	2.417	0.0366	2,771	0.017	Extracellular Space	cytokine
TMEM200A	transmembrane protein 200A	TMEM200A	2.433	0.0104	1,943	0.0297	Other	other
ZNF521	zinc finger protein 521	ZNF521	2.436	8,006.25	3,879	3,446.45	Nucleus	transcription regulator
OR6T1P	olfactory receptor family 6 subfamily T member 1 pseudogene	OR6T1P	2.453	0.000849	3,772	0.0000475	Other	other
PAMR1	peptidase domain containing associated with muscle region PAMR1	PAMR1	2.457	0.0000133	1,994	0.000191	Extracellular Space	peptidase
ADGRG5	adhesion G-protein-coupled receptor G5	GPR114	2.477	0.000103	3,206	0.00000197	Plasma Membrane	G-protein coupled receptor
LINC00693	long intergenic non-protein coding RNA 629	LINC00693	2.548	0.000067	2,723	0.0000274	Other	other
LINC00678	long intergenic non-protein coding RNA 278	LINC00678	2.528	0.0207	2,437	0.0447	Other	other

**a**



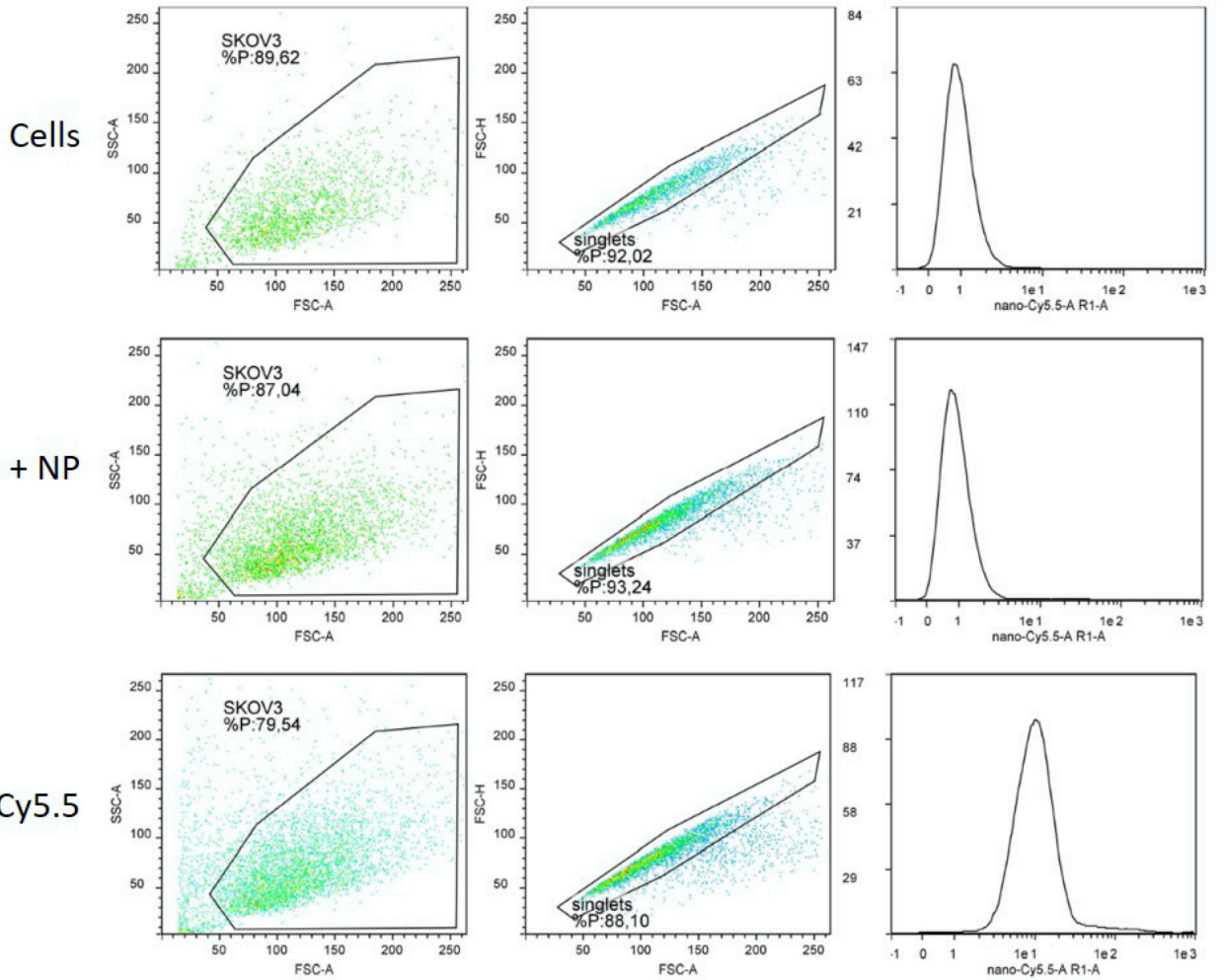
**b**



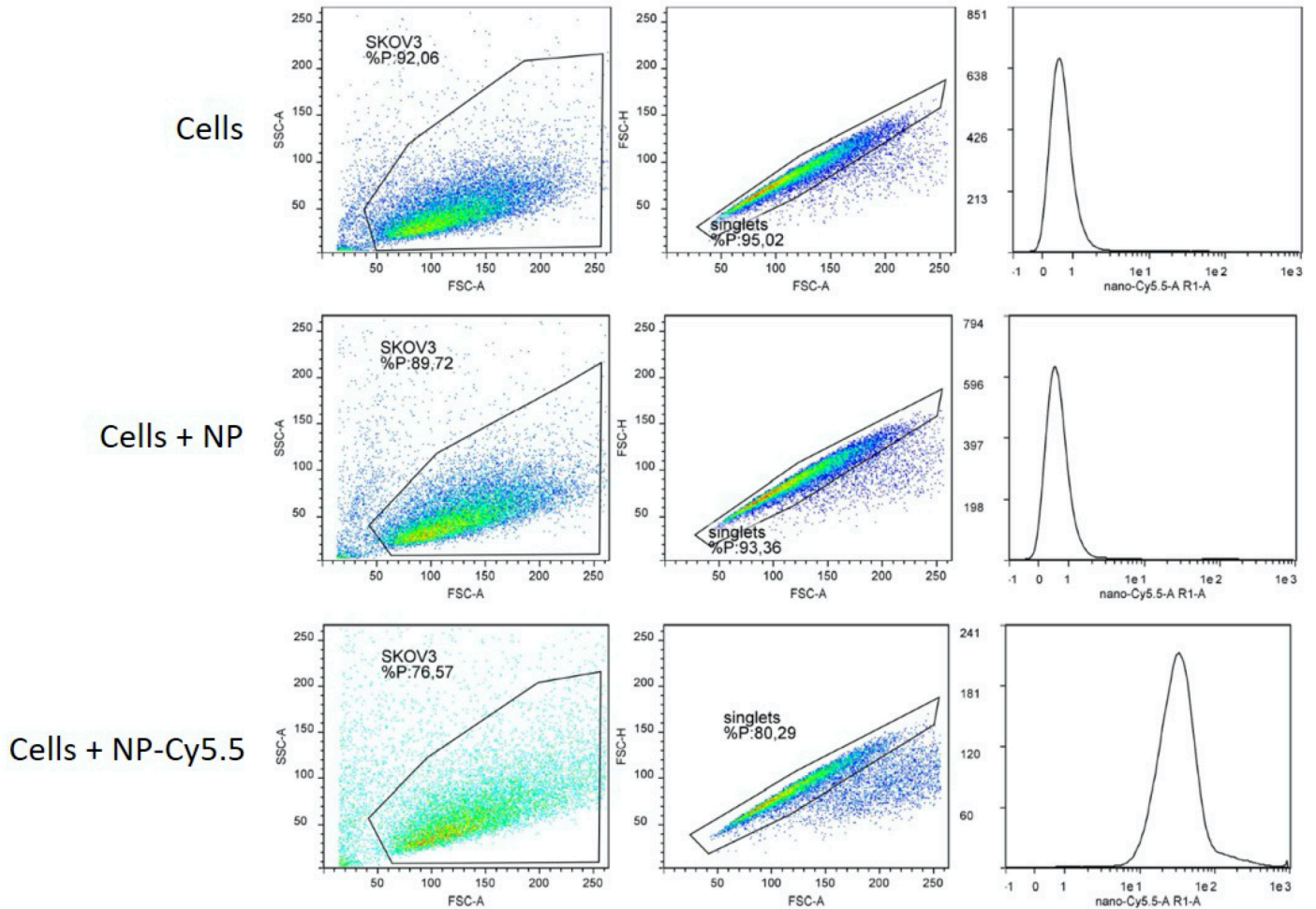
**Supplementary Figure 1**



### 3h post-treatment

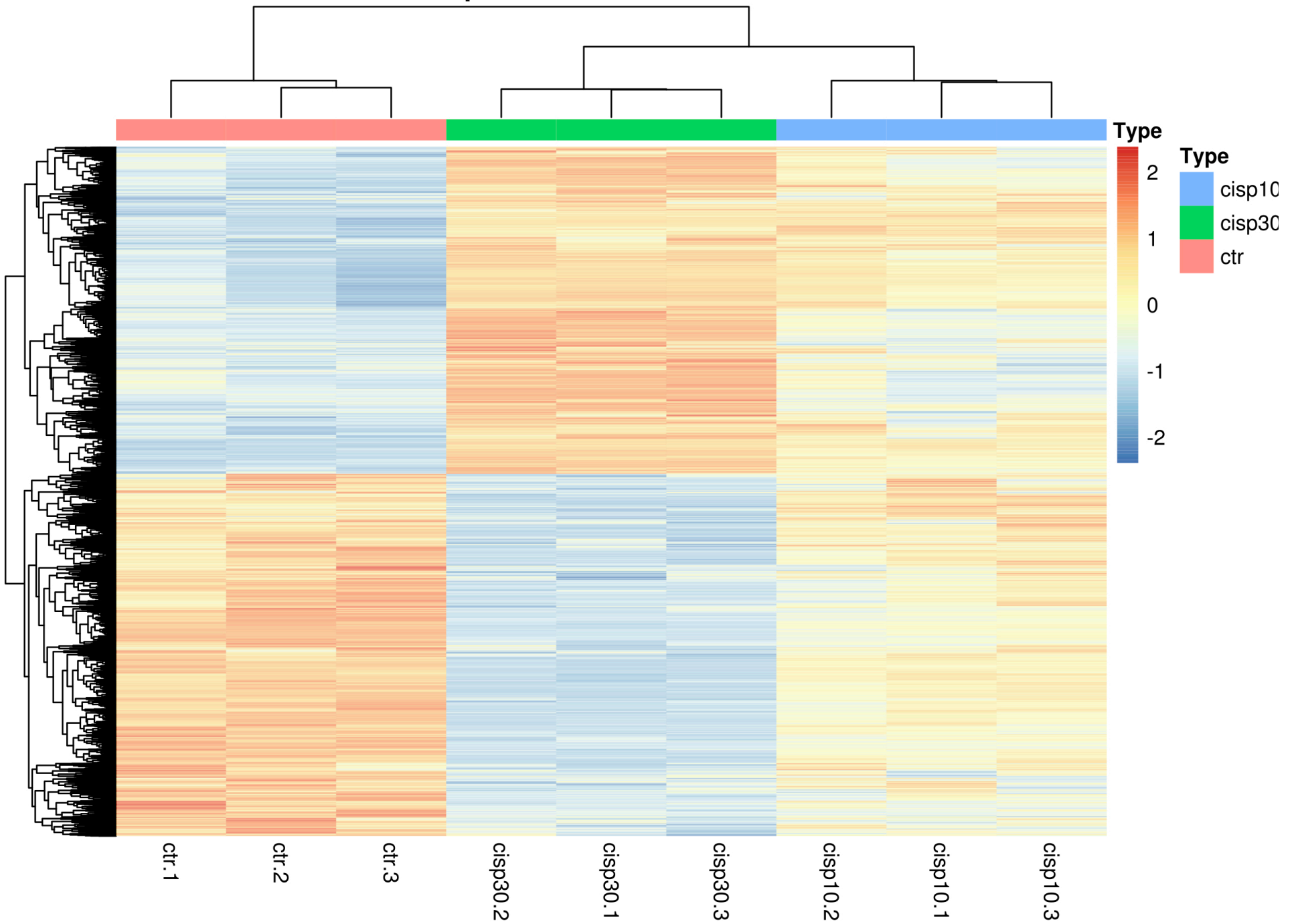


### 24h post-treatment



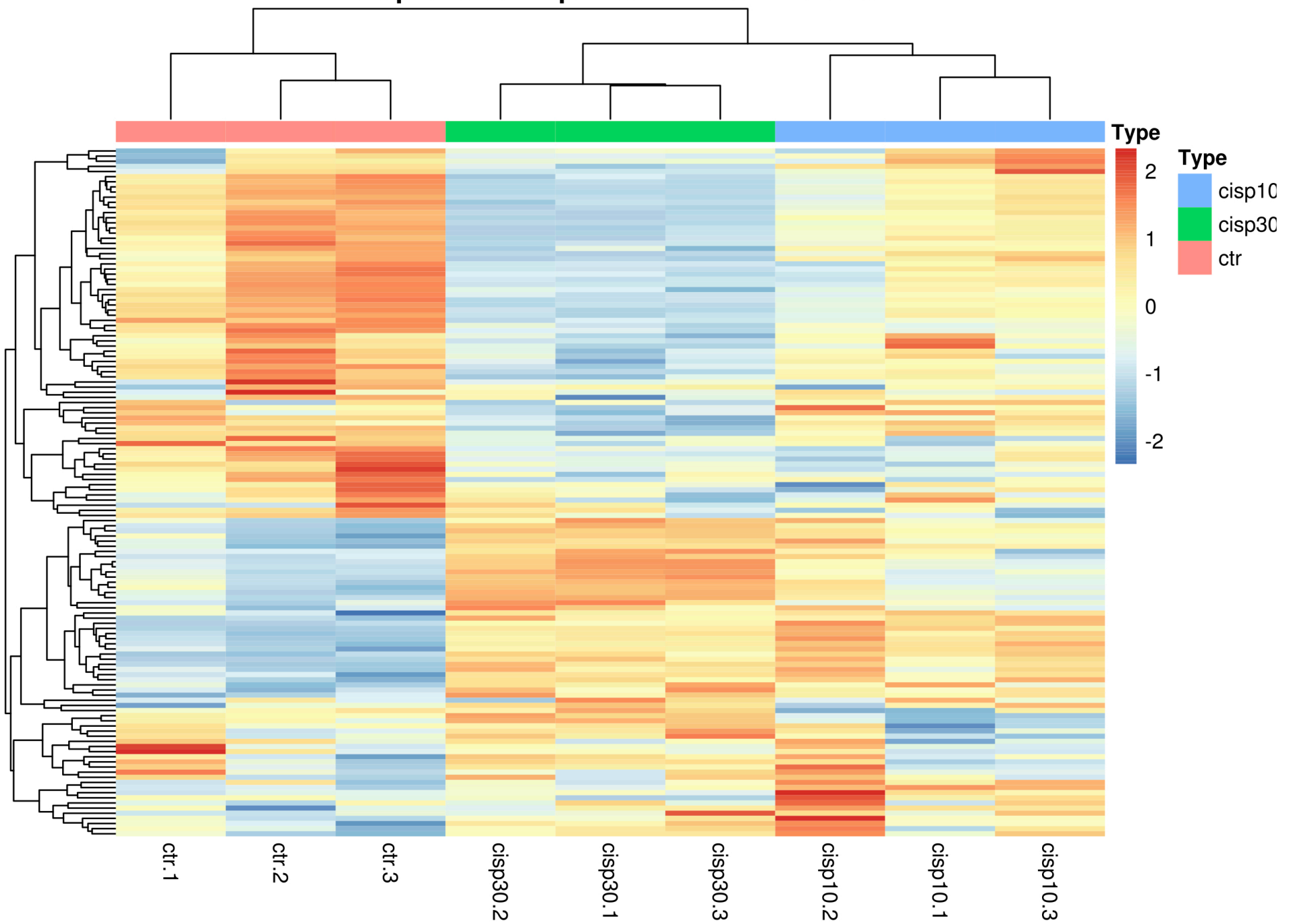
Supplementary Figure 2

# Cisplatin 10Nm and 30Nm



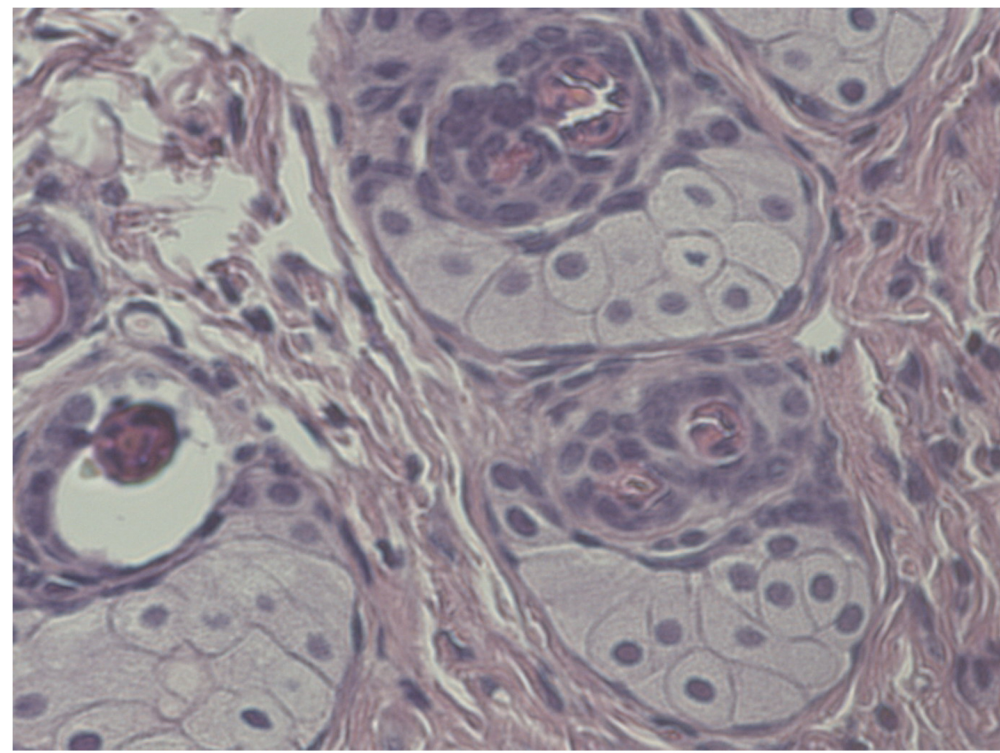
Supplementary Figure 3

# Nanoparticles Cisplatin 10Nm and 30Nm

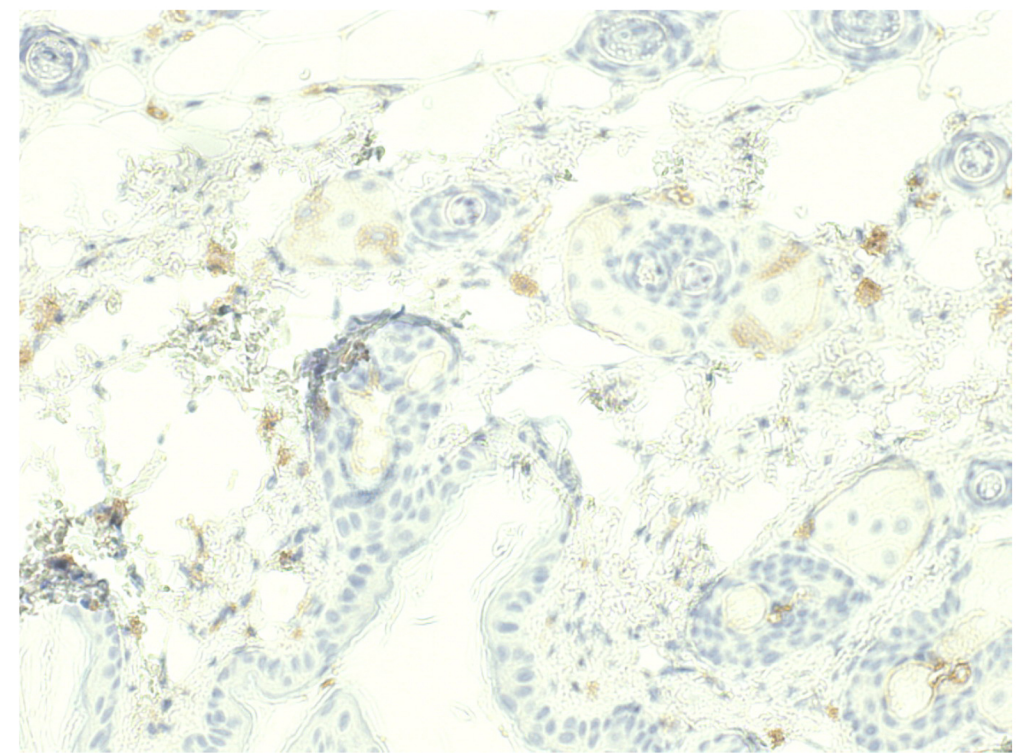


Supplementary Figure 4

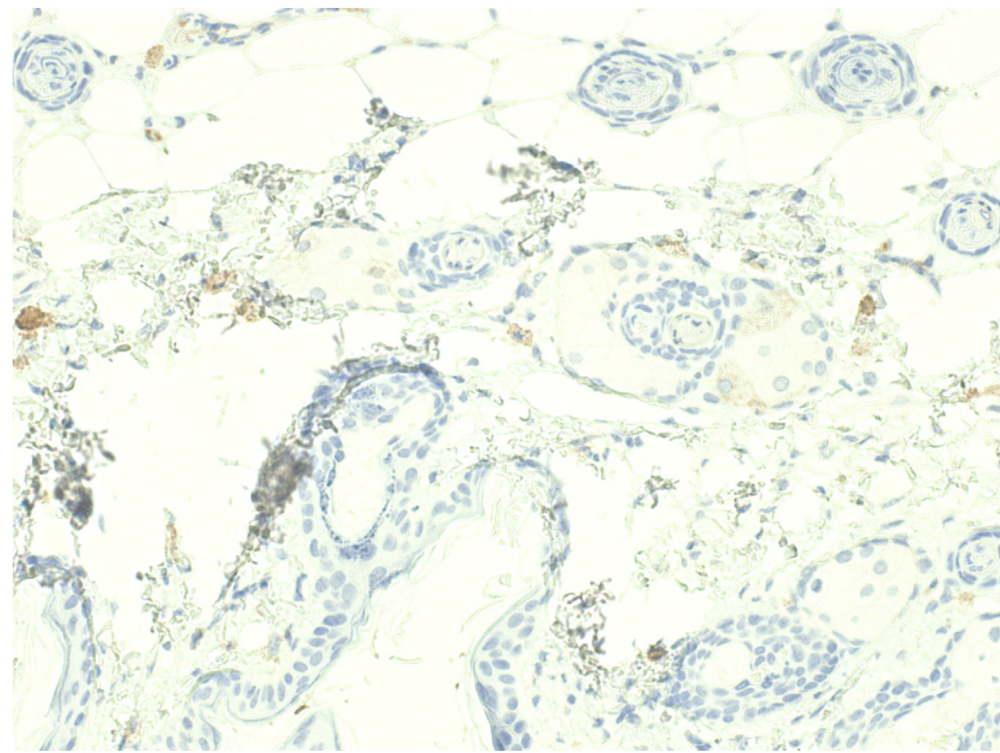
**a** Intraperitoneal nodule



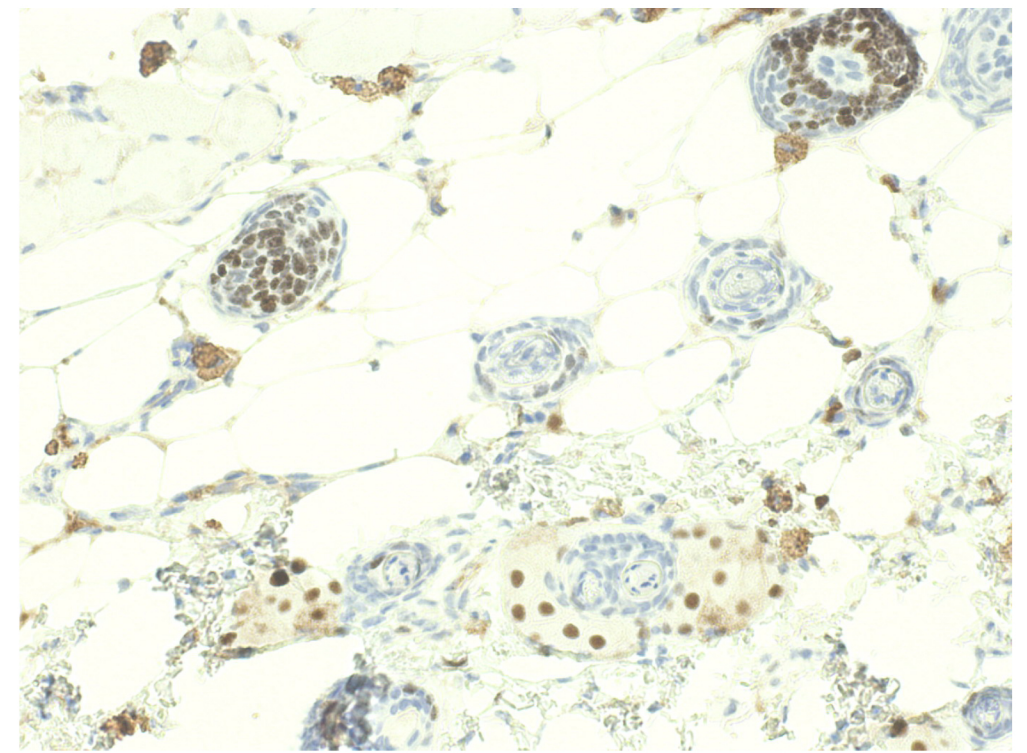
Hematoxylin and eosin



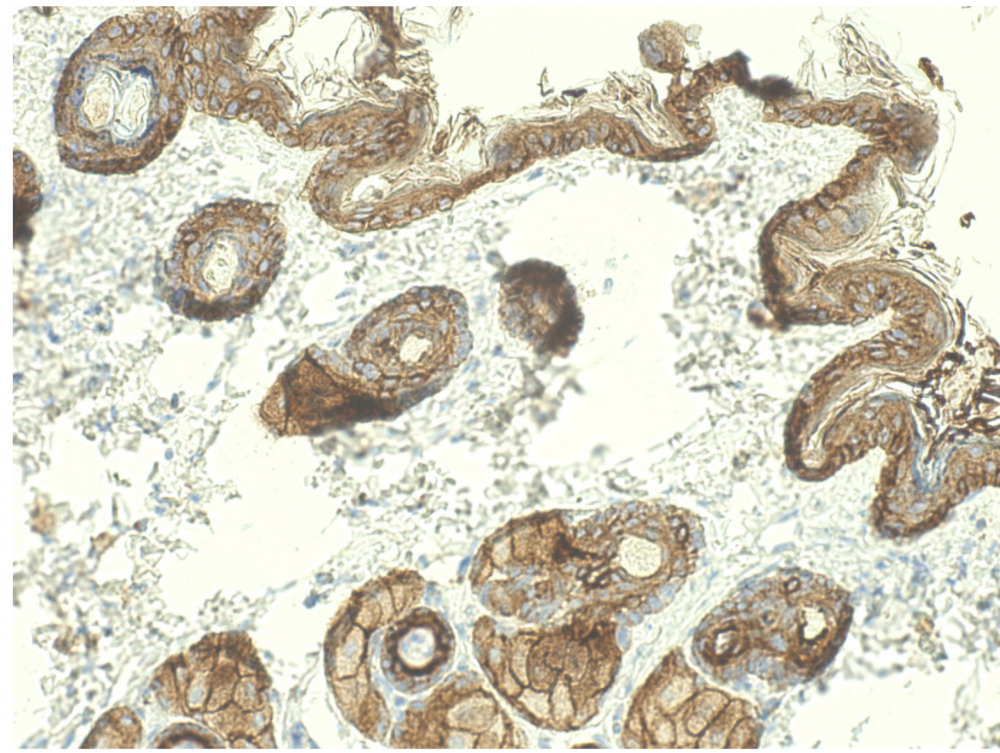
E-cadherin



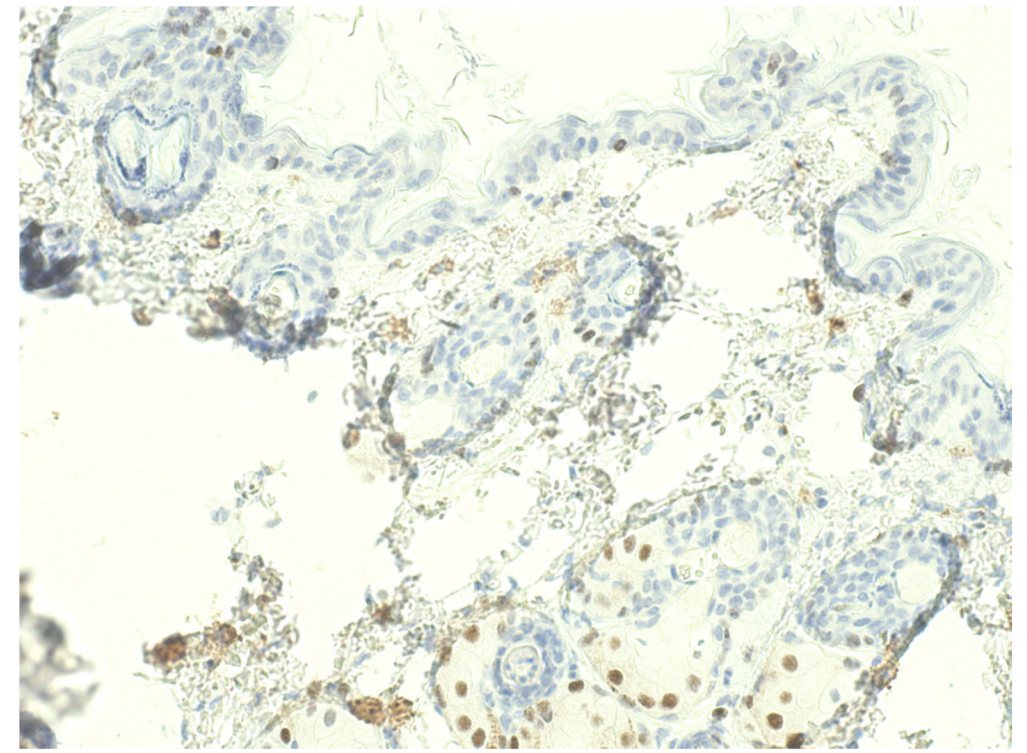
Vimentin



Ki67



MCK



Ki67

**b** Tumor mass in the *omentum* (Hematoxylin and eosin)

