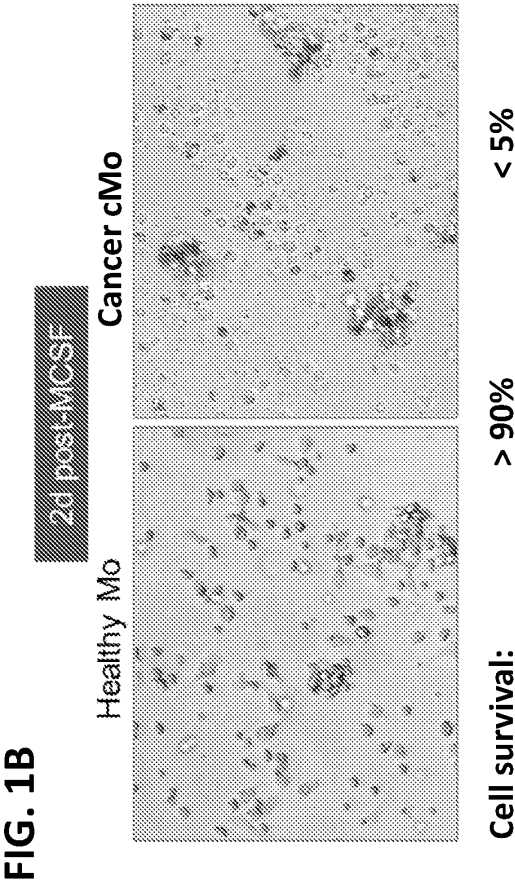
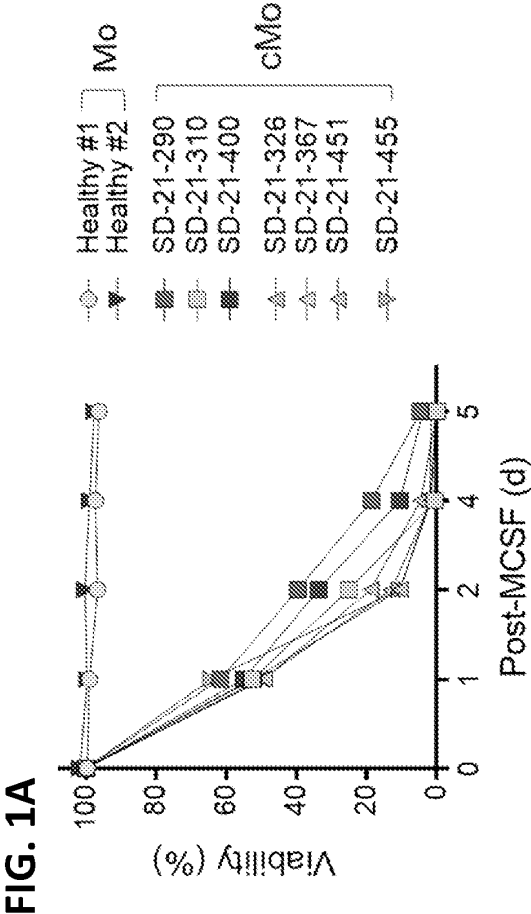




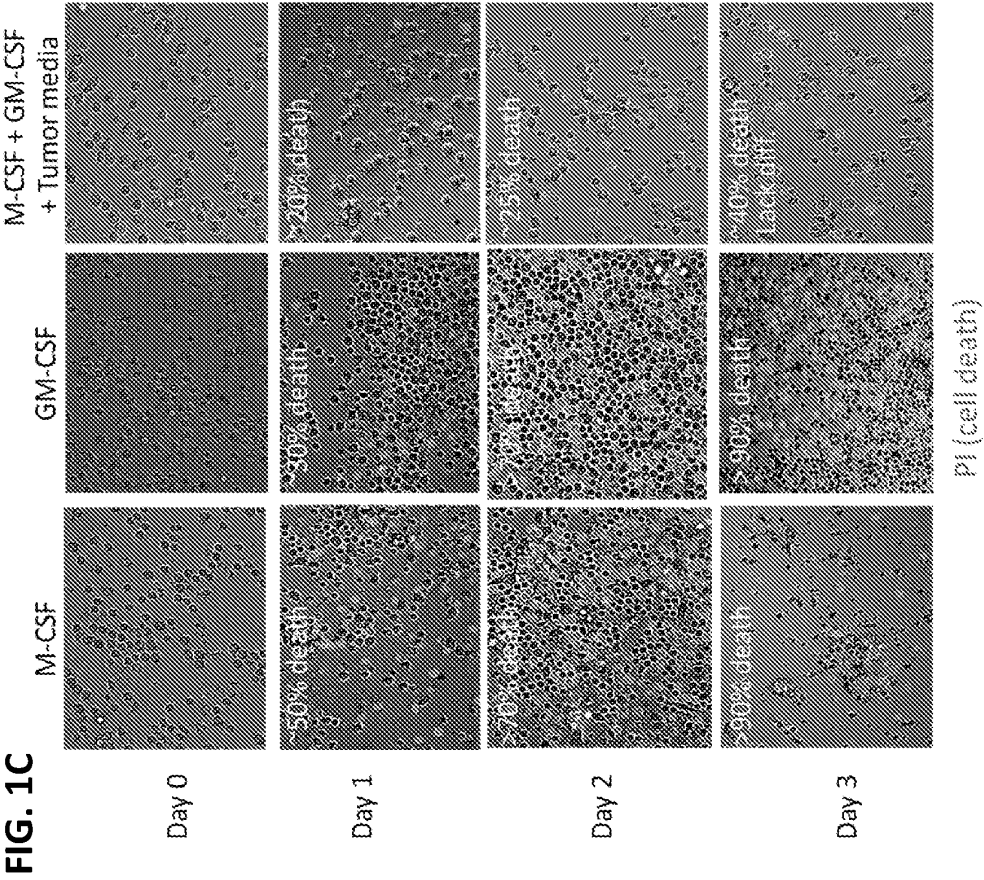


FIG. 1D

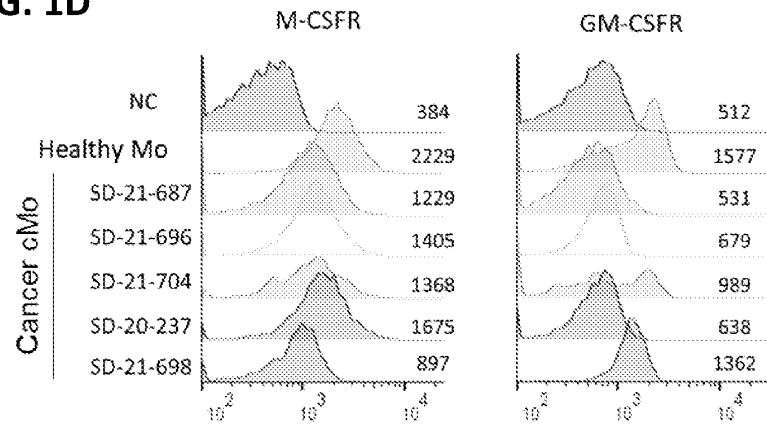


FIG. 1E

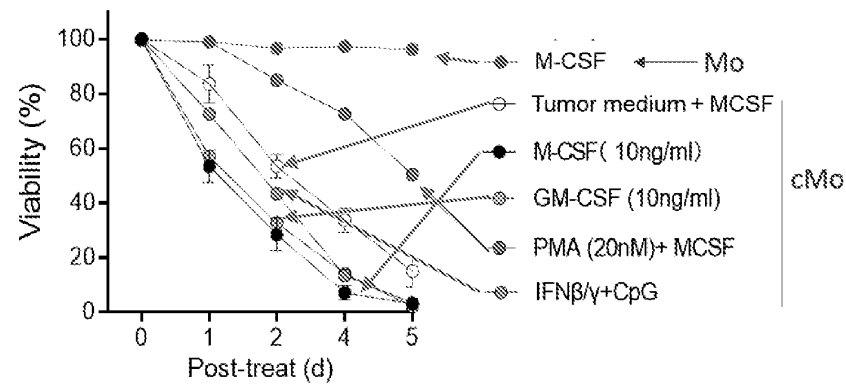


FIG. 2A

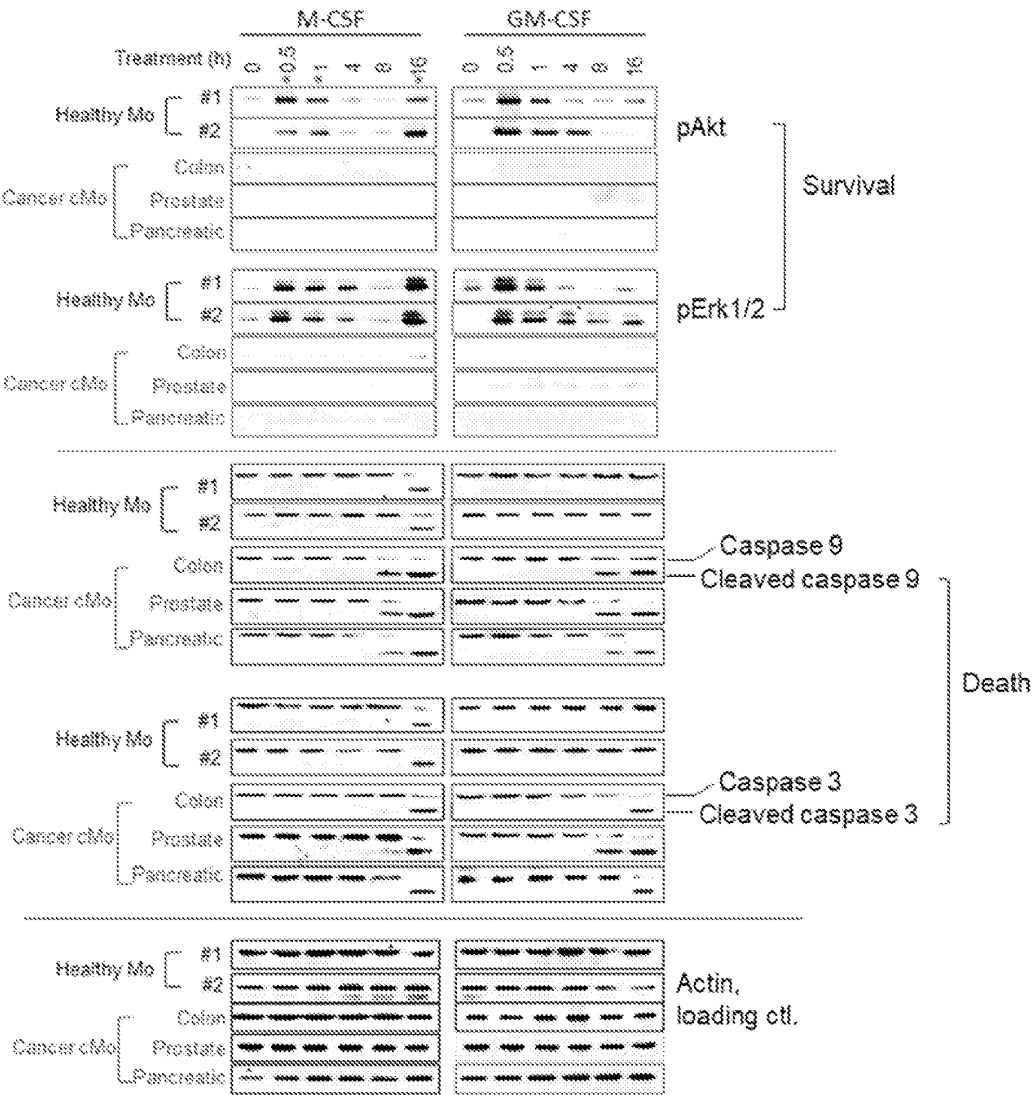


FIG. 2B

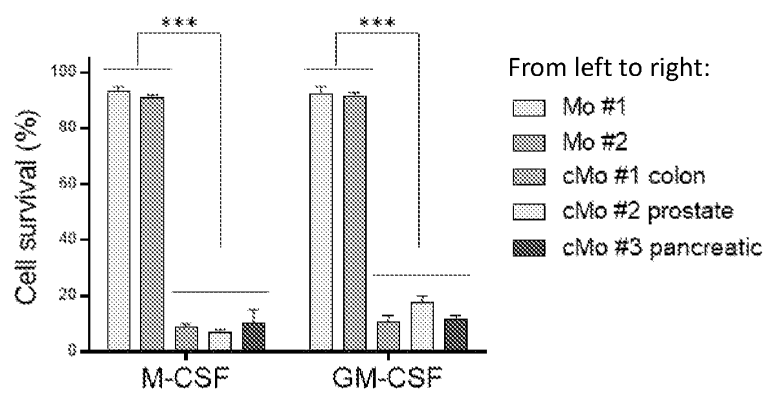


FIG. 2C

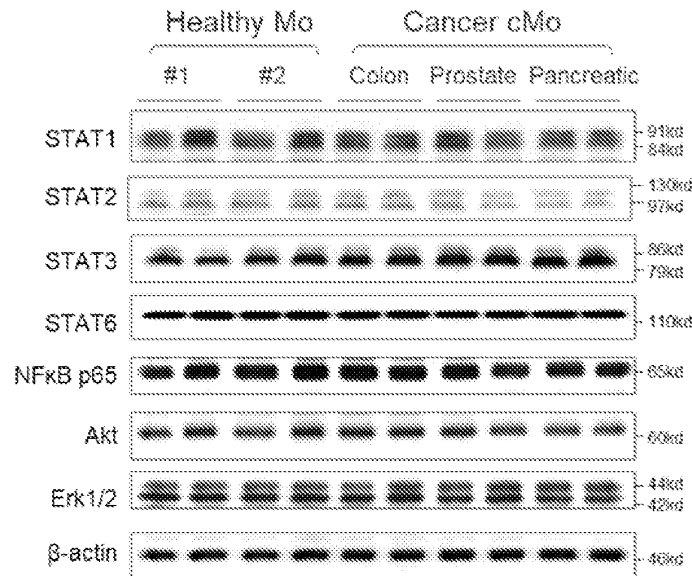


FIG. 3A

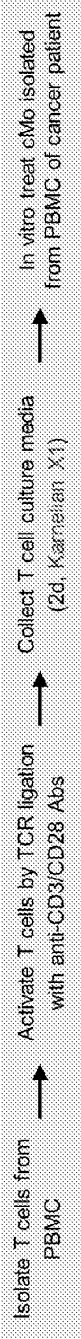


FIG. 3B

T cells from "autoimmune flare" KX1 Cytokine production by the 1st round TCR-stimulated CD4 T cells

Cytokine (pg/ml)	IFN γ	IL-2	IL-10	TNF α	GM-CSF	IL-6	IL-17A	M-CSF	IL-4	TGF β	SCF	IL-12
day1	23148 ⁺⁴¹²⁶	10138 ⁺²⁴⁷²	9147 ⁺¹⁴⁸⁰	4638 ⁺⁶³⁸	49 ⁺¹⁸	815 ⁺⁵⁸³	32 ⁺⁸	4 ⁺¹	80 ⁺¹⁰	ND	ND	3 ⁺¹
day2	56832 ⁺¹⁷⁴⁰	3132 ⁺³⁷²	23370 ⁺¹⁵⁷⁹	3007 ⁺⁵⁴⁷⁶	326 ⁺⁵⁴	1006 ⁺⁷⁷⁷	79 ⁺¹⁰	19 ⁺⁹	156 ⁺¹⁹	ND	ND	ND
day3	25025 ⁺³³⁵⁴	303 ⁺⁸⁸	14372 ⁺¹³⁷¹	2306 ⁺⁹¹⁸⁶	267 ⁺⁴¹	431 ⁺²⁶⁶	49 ⁺¹¹	59 ⁺¹⁰	93 ⁺¹³	ND	ND	ND

Cytokine (pg/ml)	IFN γ	IL-2	IL-10	TNF α	GM-CSF	IL-6	IL-17A	M-CSF	IL-4	TGF β	SCF	IL-12
day1	21548 ⁺²⁵⁶¹	9861 ⁺¹⁸³⁹	327 ⁺¹⁶⁴	4162 ⁺¹³¹⁸	53 ⁺¹⁷	82 ⁺⁸⁰	36 ⁺¹²	8 ⁺²	35 ⁺¹¹	ND	ND	ND
day2	49769 ⁺⁵⁸³⁶	2874 ⁺⁶⁸	970 ⁺⁴⁶⁵	3603 ⁺²⁵⁹¹	290 ⁺⁴¹	32 ⁺²⁹	25 ⁺⁹	29 ⁺⁵	125 ⁺¹⁶	ND	ND	ND
day3	20372 ⁺¹⁹⁴¹	719 ⁺⁶⁷	619 ⁺³⁸³	1928 ⁺¹²⁴²	224 ⁺¹⁷	36 ⁺¹⁴	34 ⁺¹⁹	36 ⁺⁸	84 ⁺¹⁰	ND	ND	ND

T cells from healthy donors

FIG. 3C

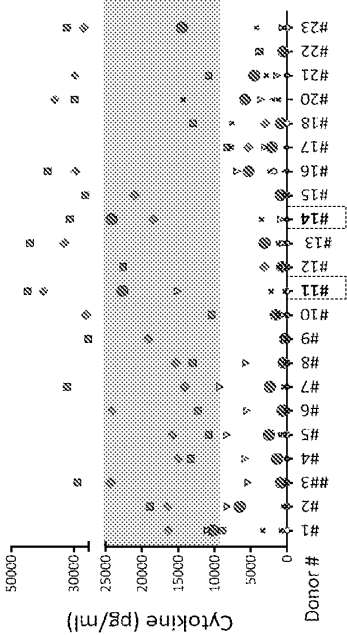
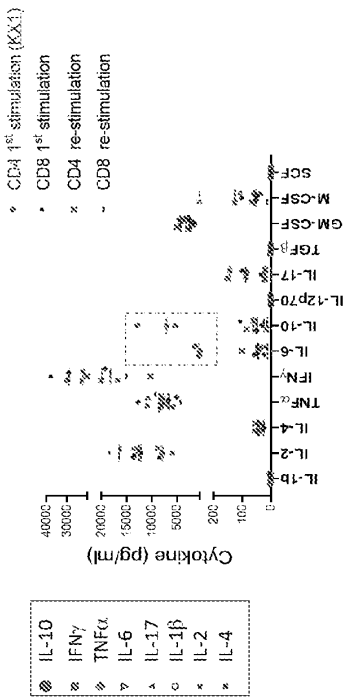
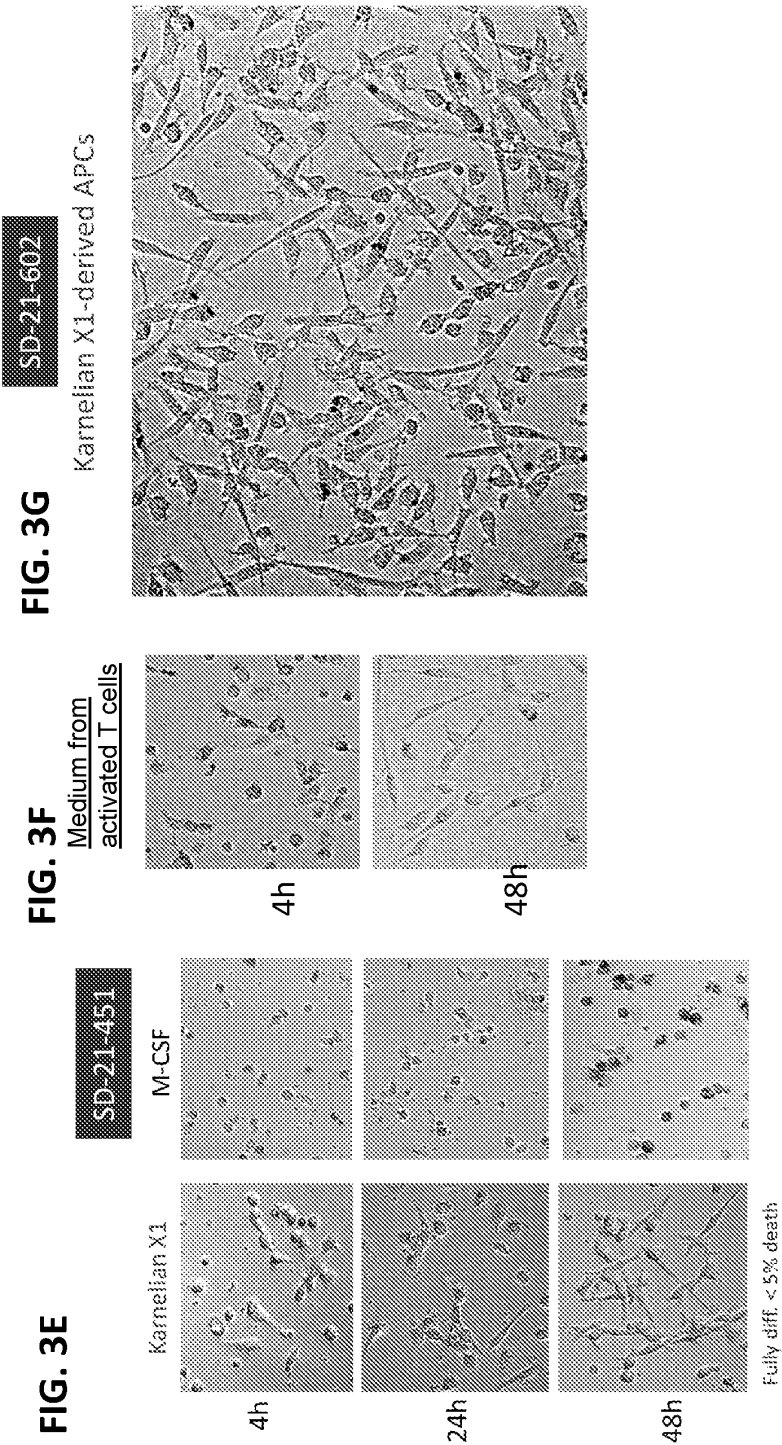


FIG. 3D





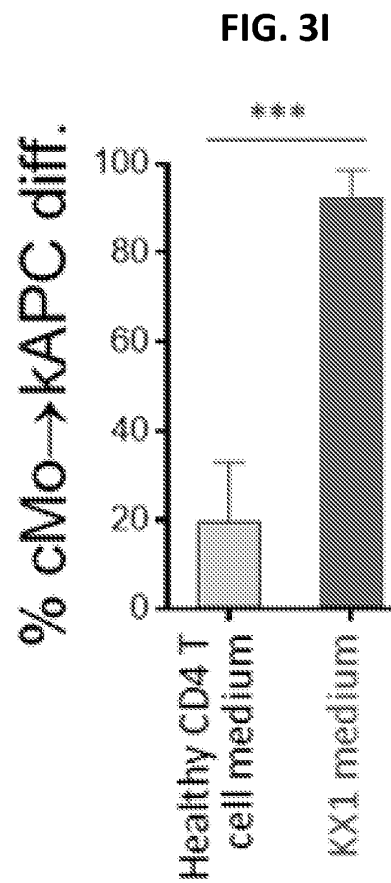
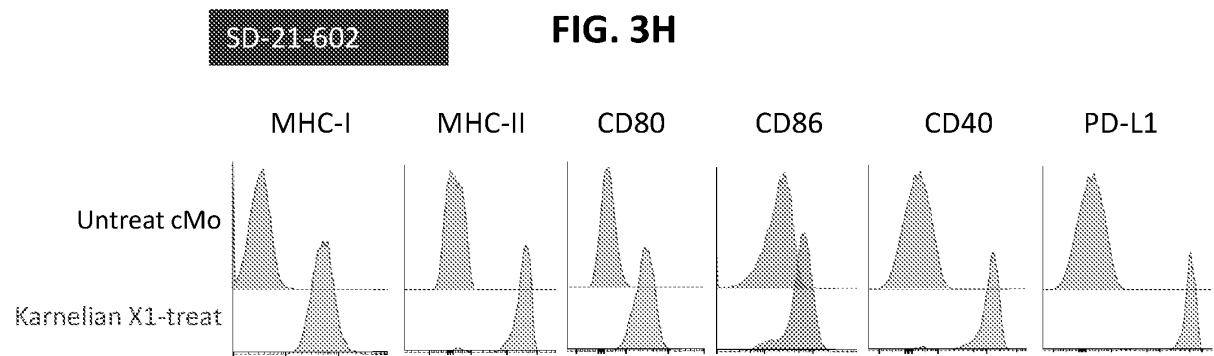


FIG. 4

Ex vivo differentiating monocytes from healthy donors or cancer patients by M-CSF, GM-CSF or Karmelian X1

	Human Whole Blood (cc) or PBMC	Cell Number (x10 ⁶ /10cc blood)					Monocyte Differentiation	
		PBMC total	CD66+ G-MDSC	CD4	CD8	CD14+ Monocyte	5d M-CSF or GM-CSF (Survive & Diff.)	2d Karmelian X1 (Survive & Diff.)
	Healthy donor #1	8.3	0.2	2.0	2.1	2.4	>95%; Diff. ++++	>90%; Diff. ++++
	Healthy donor #2	9.0	0.6	2.3	1.8	1.6	>90%; Diff. ++++	>90%; Diff. ++++
	Healthy donor #3	10.5	<0.1	2.9	2.7	2.4	>90%; Diff. ++++	>90%; Diff. ++++
CHTN/Duke SD-21-290	Liver Cancer #1 (10cc), 58 y/o, M, stage II, no prior treatment	60.0	-	-	-	3.0	Fail: M-CSF <1%; GM-CSF <4%	N.A.
SD-21-310	Liver Cancer #12 (15cc), 43 y/o, M, Caucasian- left hepatic mets colorectal primary adenocarcinoma	0.7	-	-	-	-	Fail: M-CSF <1%; GM-CSF <3%	N.A.
SD-21-400	Liver #3 Metastatic urothelial carcinoma Liver Segment (20cc), 51y M, Caucasian.	37.0	25.3	1.3	1.5	5.2	Fail: M-CSF <1%; GM-CSF <7%	N.A.
SD-21-326	Kidney Cancer #1 (15cc), 70 y/o, Female, Caucasian Clear cell renal cell carcinoma II/IV	80.0	39.8	-	-	1.6	Fail: M-CSF 0%; GM-CSF <8%	N.A.
SD-21-696	Liver #4 32 y/o Female, Caucasian, 12cc, met CRC to liver	10.8	5.72	-	-	1.96	Fail: M-CSF < 2%; GM-CSF <10%	>90%; diff. ++++
SD-21-699	Liver #5 75 y/o Male Caucasian, 9cc R hepatic lesion Cholangiocarcinoma	6.7	1.53	-	-	1.0	Trace: M-CSF <5%; GM- CSF <15%	>90%; diff. ++++
SD-21-704	Liver #6 73 y/o Male Caucasian Cholangiocarcinoma 15cc CHTN/Duke	10	1.5	2.45	0.7	0.98	Fail: M-CSF <1%; GM-CSF <4%	>90%; diff. ++++
SD-20-237	Liver #7 72 y/o Female Caucasian met colon cancer to liver 20cc	48.5	24.25	2.26	2.36	10.23	Trace: M-CSF <4%; GM- CSF <6%	>90%; diff. ++++
SD-21-367	Kidney Cancer #2 (10cc)	26.0	16.9	0.7	0.5	4.4	Fail: M-CSF <1%; GM-CSF <1%	>90%; diff. ++++
SD-21-451	Kidney Cancer #3 (10cc)	10.0	5.6	1.3	1.2	1.2	Fail: M-CSF 2%; GM-CSF <5%	>90%; diff. ++++
SD-21-593	Kidney Cancer #4 (16cc), 71y Male, Caucasian	3.1	0.2	0.5	0.3	1.2	Fail: M-CSF <1%; GM-CSF <1%	>90%; diff. ++++
SD-21-672	Kidney Cancer #5 (20cc) 49y M Caucasian	5	1.2	0.5	0.2	1.2	N.A.	>90%; diff. ++++
SD-21-687	Kidney Cancer #6 (11cc) 78y M Caucasian	10.9	4.6			1.4	Trace: M-CSF ~5%; GM- CSF ~2%	>90%; diff. ++++
SD-21-453	Endometrial Cancer #1 (7cc), 64 y/o F, African American	8.6	6.4	0.4	0.6	0.5	Fail: M-CSF <1%; GM-CSF ~6%	>90%; diff. ++++
SD-21-522	Endometrial Cancer #2 (15cc) 75y/o Female, African American	2.7	<0.1	0.6	0.9	0.3	Trace: M-CSF <3%; GM-CSF ~10%	>90%; diff. ++++
SD-21-515	Thymic epithelial neoplasia (thymoma) (8cc), 69y F, Caucasian, no known presurgical therapy	6.0	0.8	2.7	0.7	0.7	Trace: M-CSF ~2%; GM- CSF ~15%	>90%; diff. ++++
SD-21-602	Stage IV adenocarcinoma lung cancer (13cc), 58y F	12.3	1.5	1.2	0.8	1.8	Trace: M-CSF ~2%; GM- CSF ~10%	>90%; diff. ++++
SD-21-623	Abdominal mass; High-grade pleomorphic spindle cell sarcoma	14	6.8	0.3	0.2	2.4	Trace: M-CSF ~7%; GM-CSF ~ 5%	>90%; diff. ++++
SD-21-669	Chondrosarcoma 78y F Caucasian CHTN/Duke	14.5	10.6	0.3	0.1	0.8	Trace: M-CSF <1%; GM-CSF <6%	>90%; diff. ++++
Hospital aponeurosis	55y F, Asian; Uterine smooth muscle cancer, liver & lung mets			~45% CD3+		25%	Fail: M-CSF <2%; GM-CSF N.A.	>90%; diff. ++++ in vitro cell neg. T: ++++
StemCell	Pancreatic cancer (PDAC), isolated PBMC	-	-	54.3% CD3+		25.5%	Trace: M-CSF <1% GM-CSF <12%	>90%; diff. ++++

FIG. 5A

Cytokine production by TCR-stimulated T cells

Cytokine (pg/ml)	IFN γ	IL-2	IL-10	TNF α	GM-CSF	IL-6	IL-17A	M-CSF	IL-4	TGF β	SCF	IL-12
Day 1	23148 ⁺⁴¹⁷⁶	10138 ⁺²⁴⁷¹	9147 ⁺¹¹⁸⁰	4638 ⁺⁶³⁹	49 ⁺¹⁸	25 ⁺⁹	32 ⁺⁸	4 ⁺¹	80 ⁺¹⁰	ND	ND	3 ⁺¹
Day 2	56832 ⁺⁷²⁴⁰	3132 ⁺⁵⁷²	23370 ⁺³⁵⁷⁹	3007.5 ⁺⁴⁷⁶	326 ⁺⁵⁴	29 ⁺⁷	29 ⁺¹⁰	19 ⁺³	166 ⁺¹⁹	ND	ND	ND
Day 3	25025 ⁺¹²⁶⁴	303 ⁺⁸⁸	14372 ⁺²³⁷¹	2306.9 ⁺³⁸⁸	267 ⁺⁴¹	31 ⁺⁴	49 ⁺¹¹	59 ⁺¹⁰	93 ⁺¹¹	ND	ND	ND

Karnelian X1

FIG. 5B

Karnelian X1 essential components

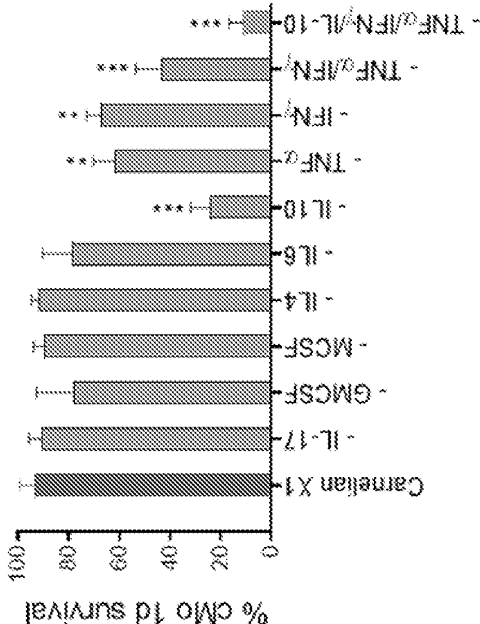


FIG. 5C

IL-10 dose-dependently enhances survival

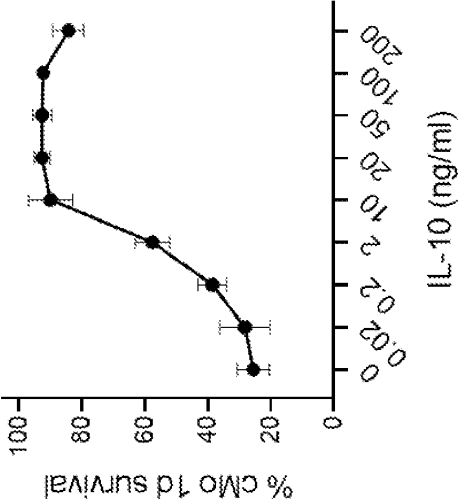


FIG. 5D

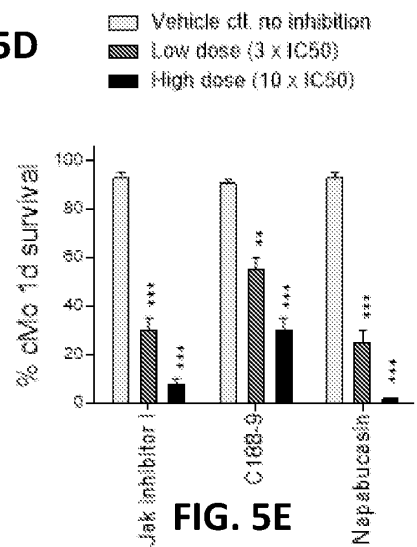


FIG. 5E

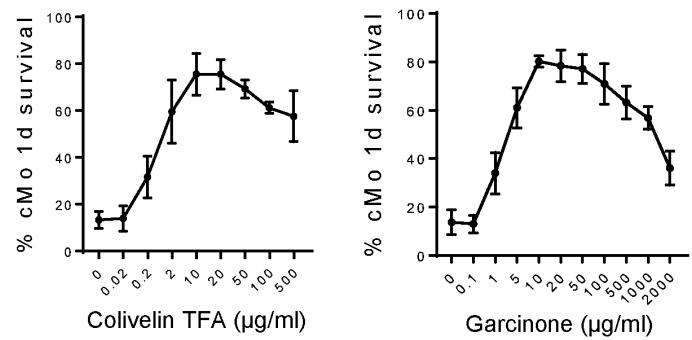


FIG. 5F

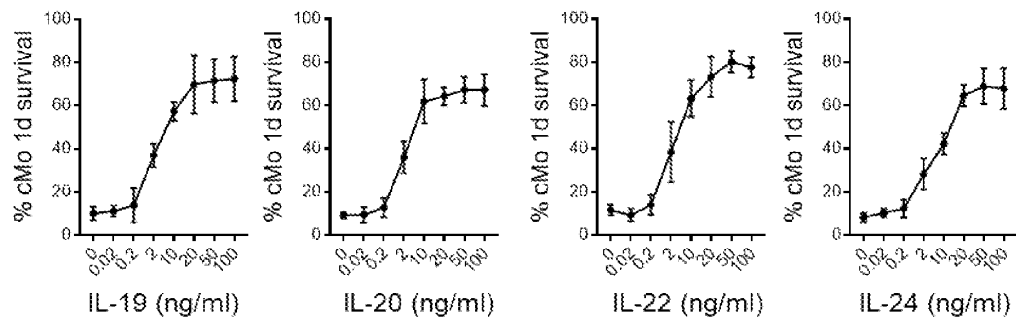


FIG. 5G

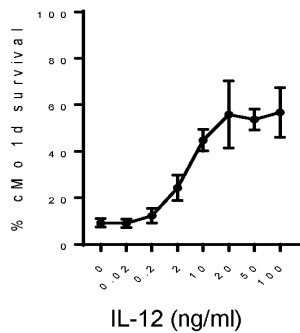


FIG. 5H

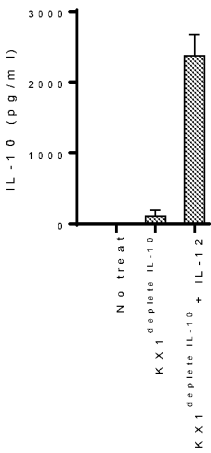


FIG. 5I

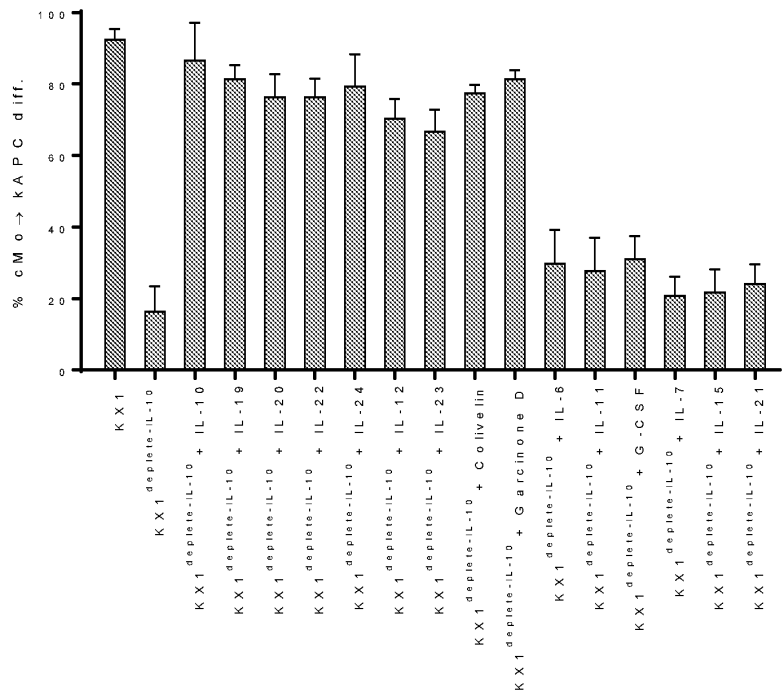


FIG. 5J

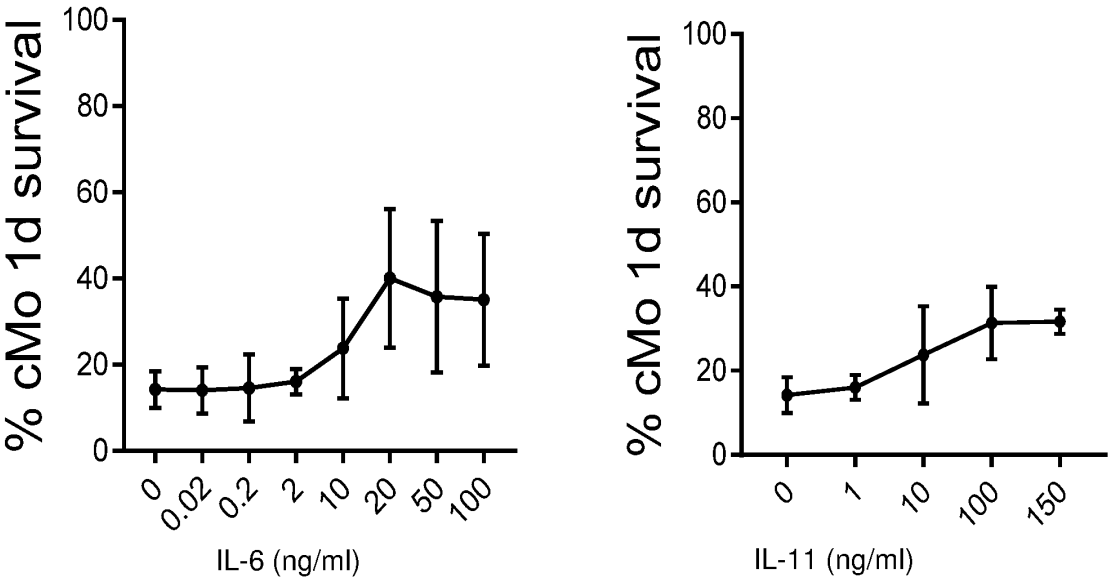
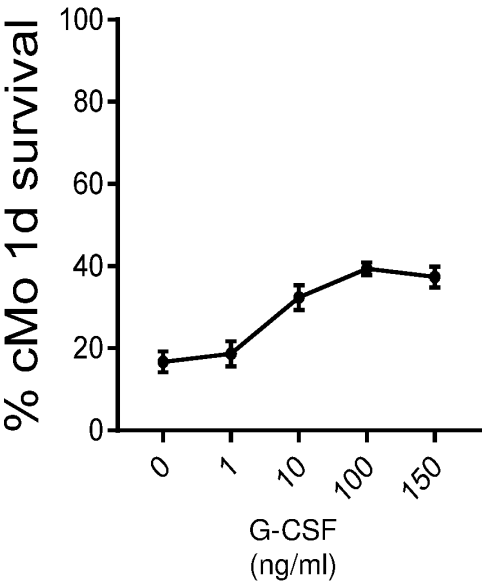


FIG. 5K



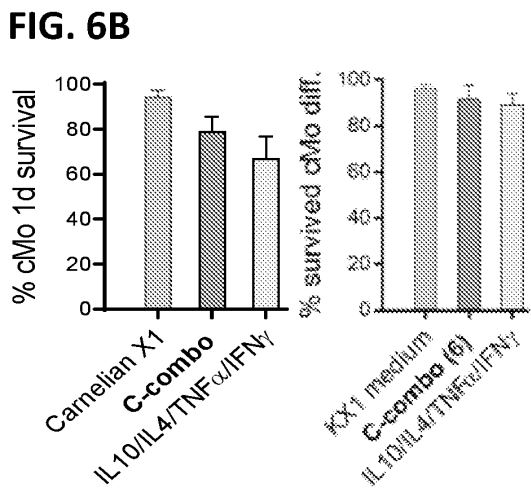
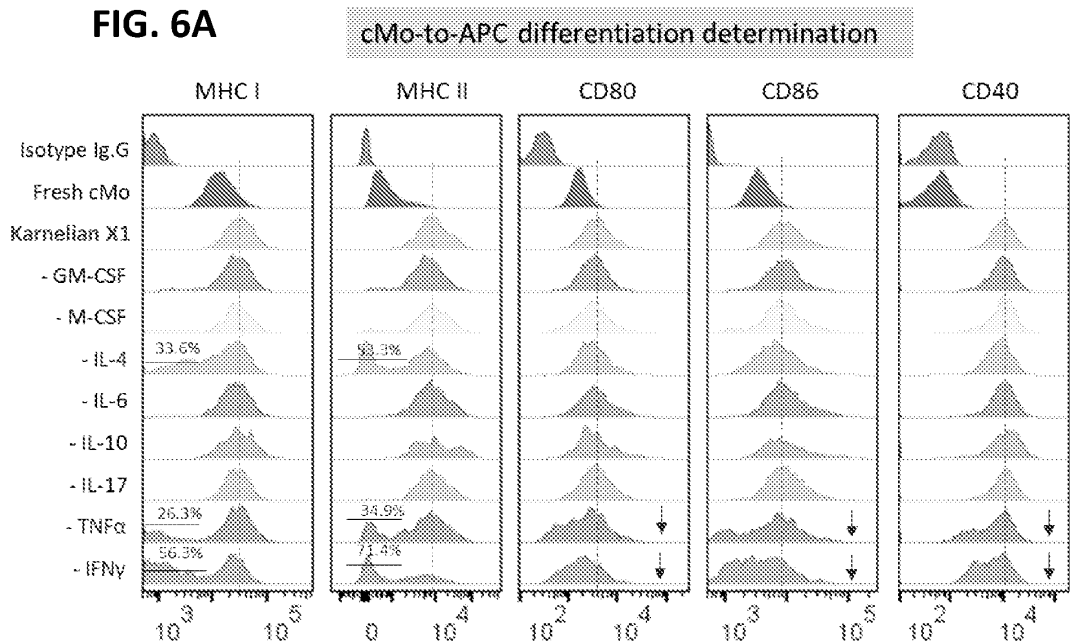


FIG. 6C

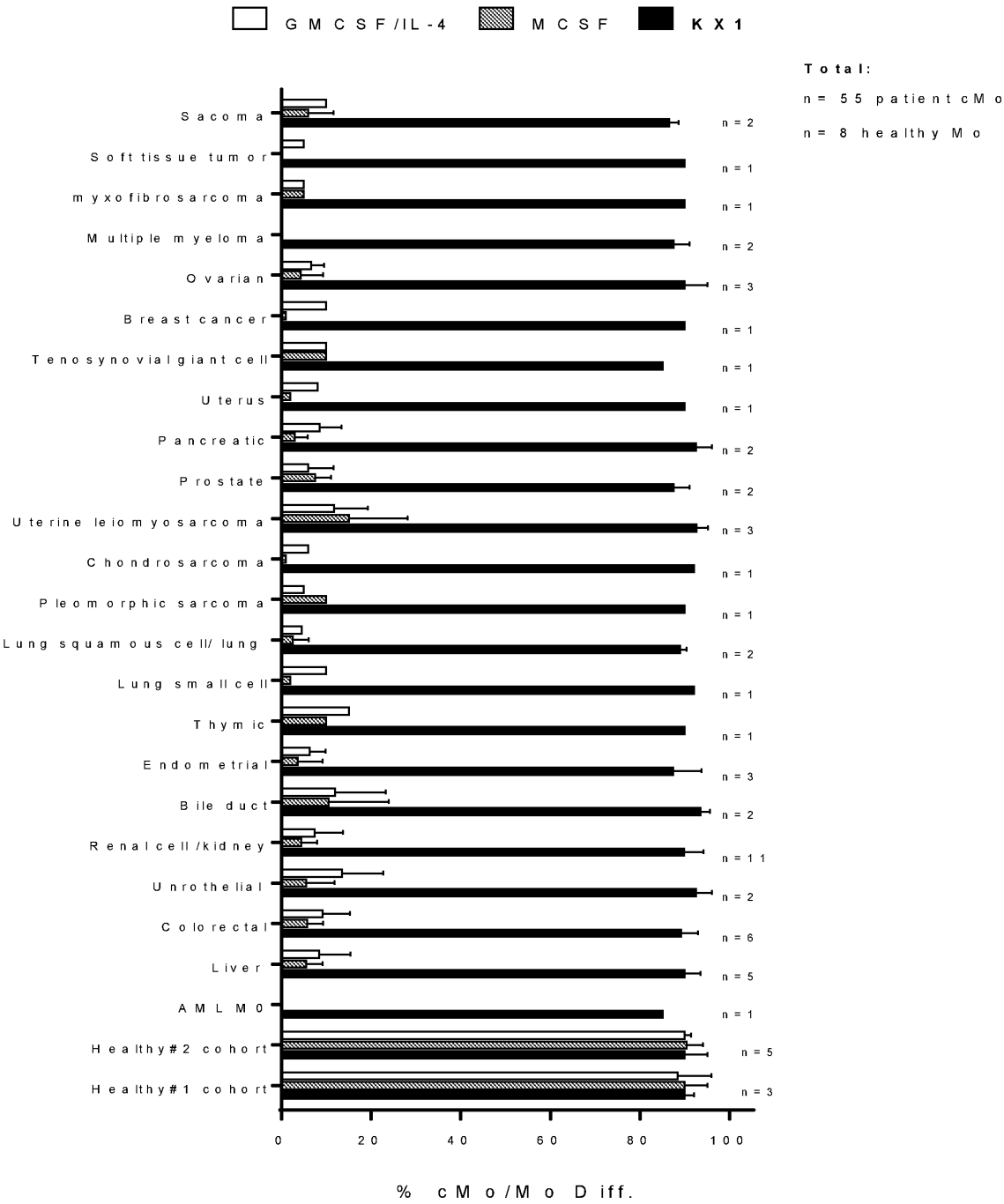
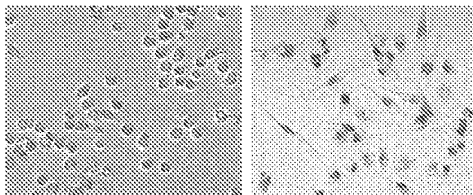


FIG. 6D



Treat cMo with C-combo

FIG. 6E

Role	cMo	
	Adhesion/Survival	APC diff.
Carnelian X1	☆☆☆☆☆	☆☆☆☆☆
IL-10	☆☆☆☆	☆
TNFα	☆☆☆	☆☆☆
IFNγ	☆☆☆	☆☆☆☆
IL-4	–	☆☆☆
GM-CSF	☆☆ / –	☆ / –
IL-6	☆ / –	–
IL-17	–	–
M-CSF	–	–
IL-2	–	–

FIG. 6F

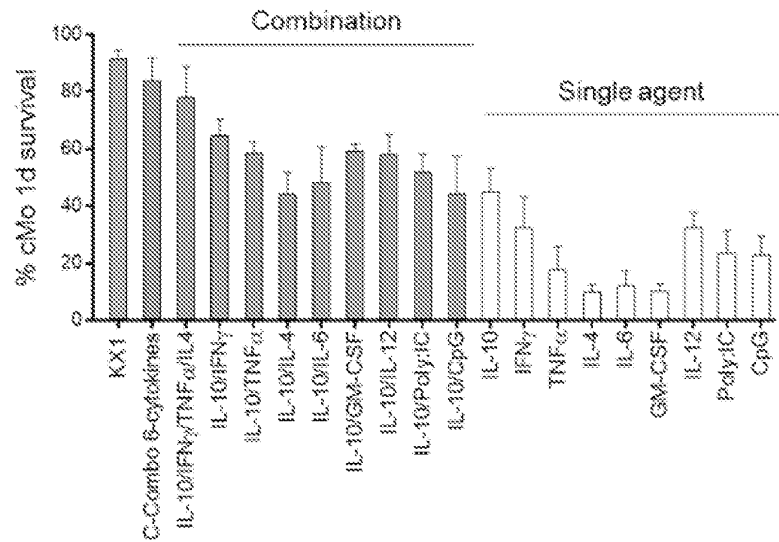


FIG. 6G

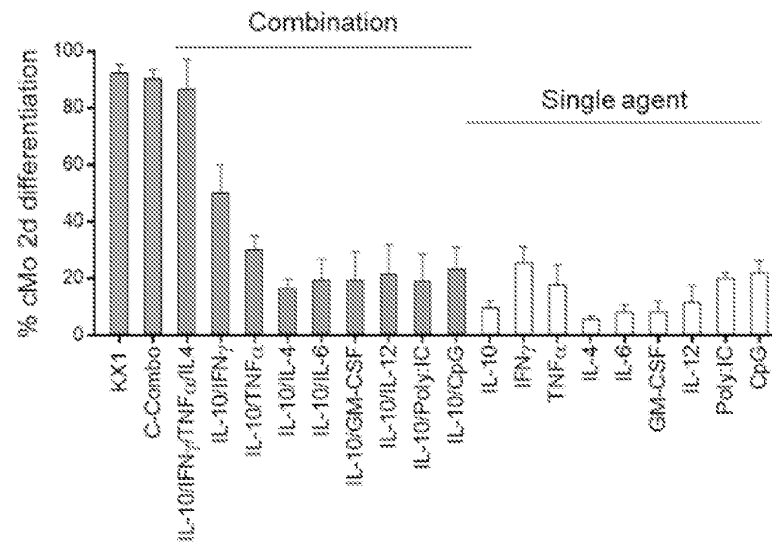
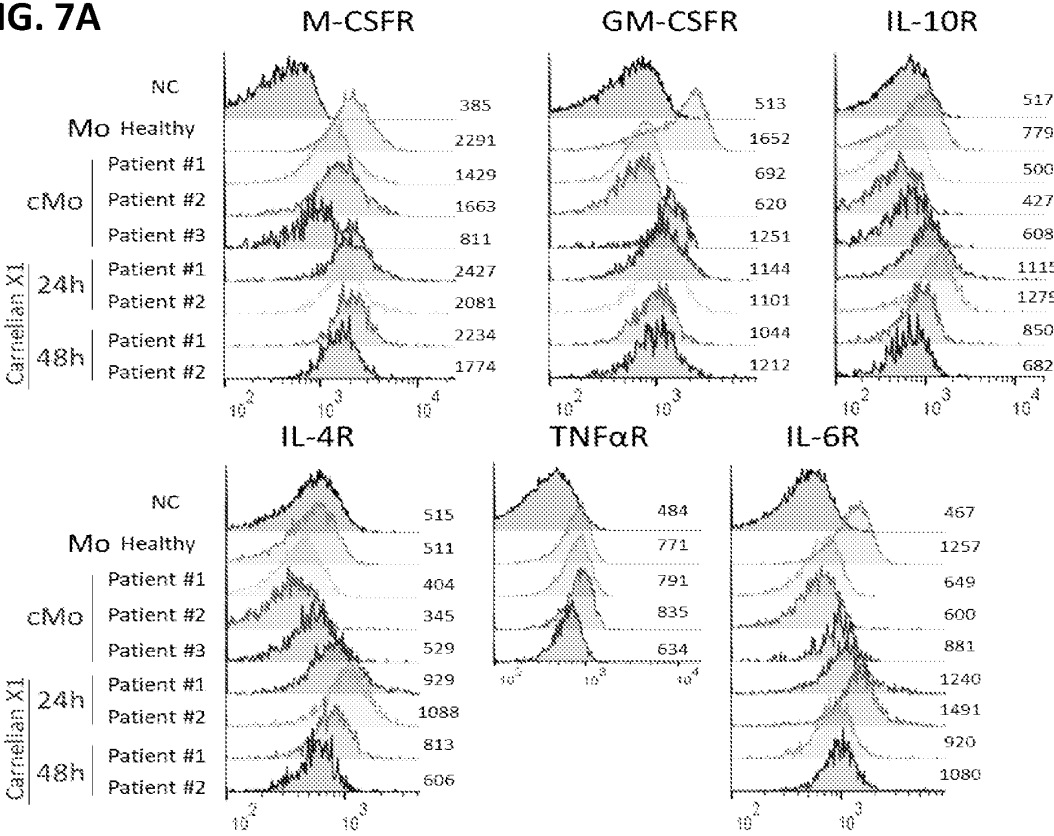


FIG. 7A



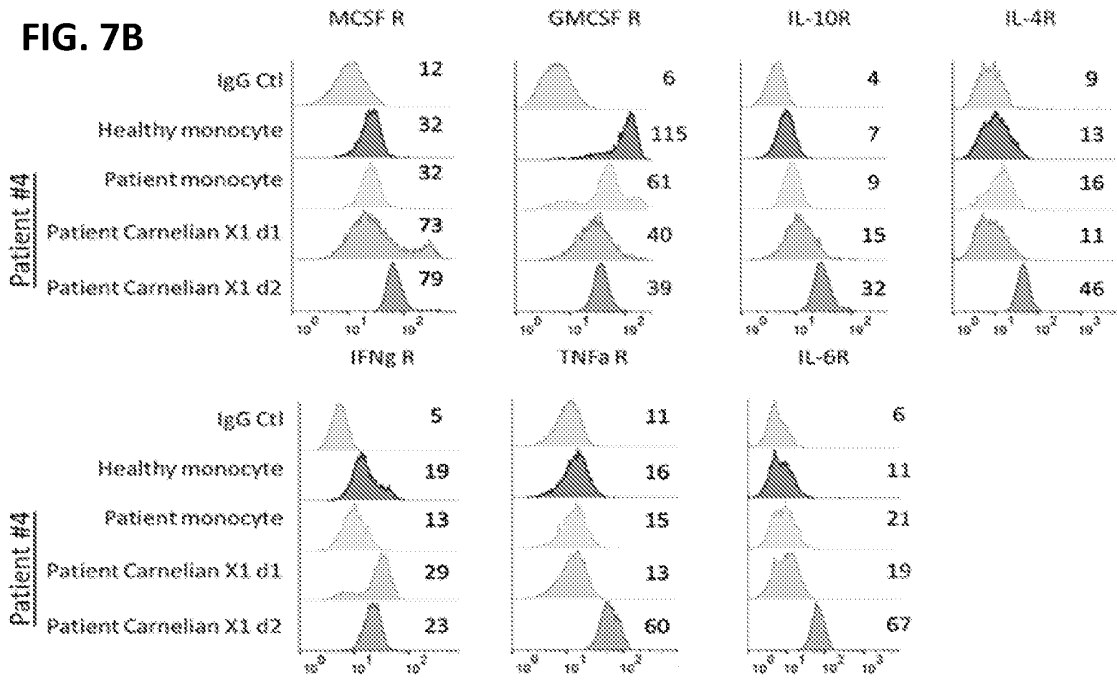


FIG. 7C

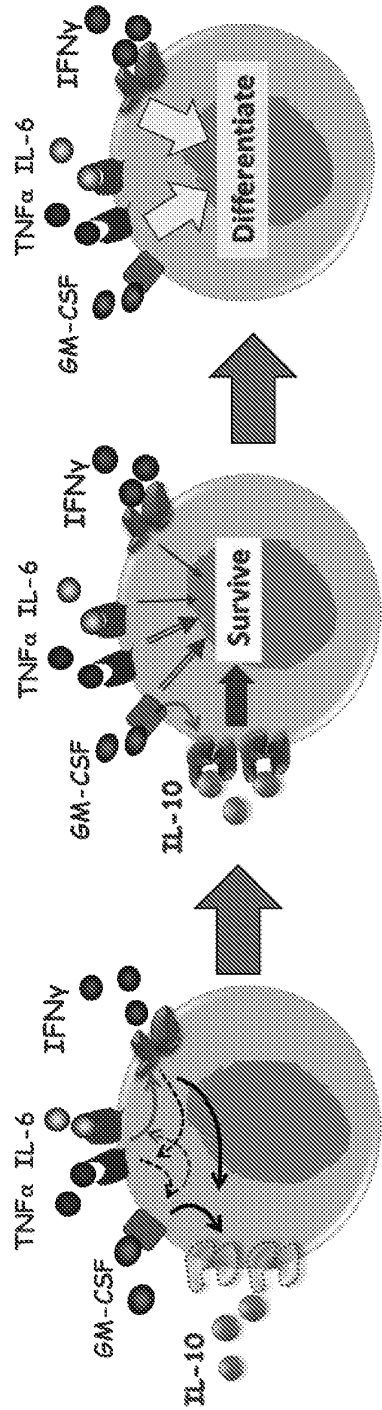
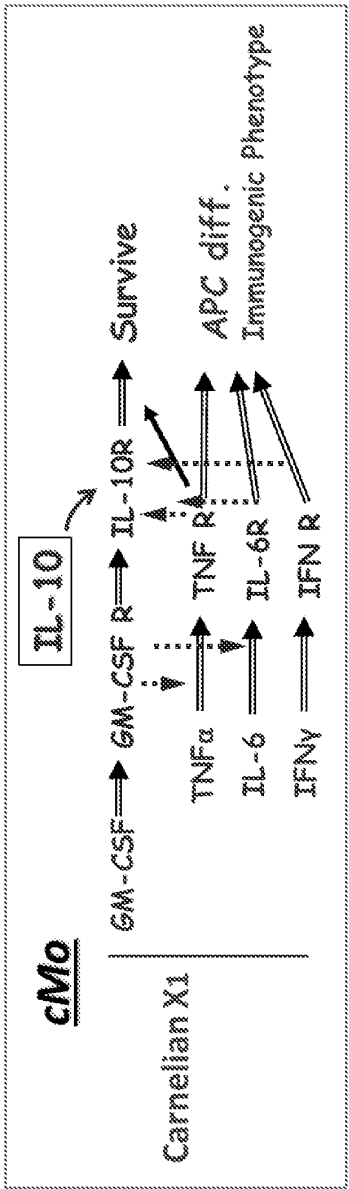


FIG. 8A

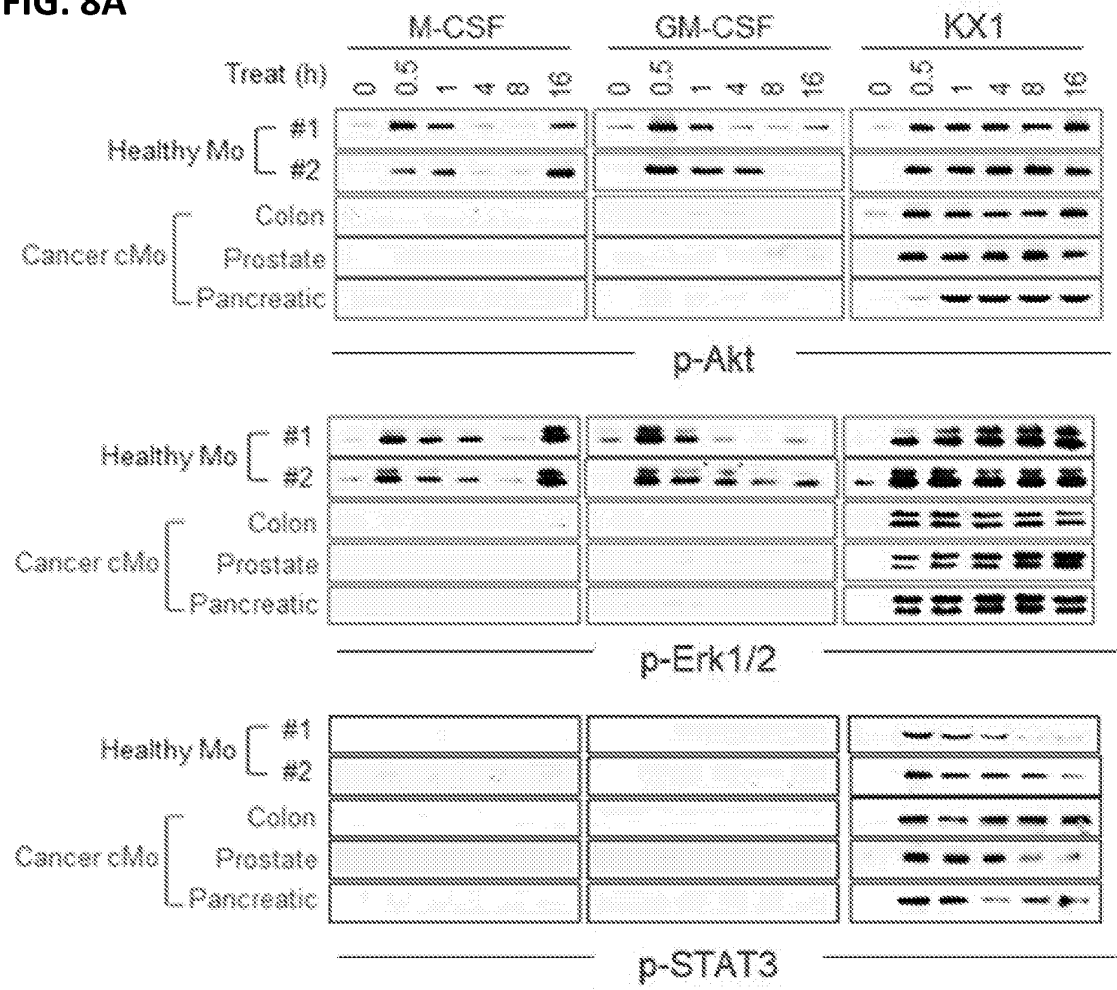


FIG. 8B

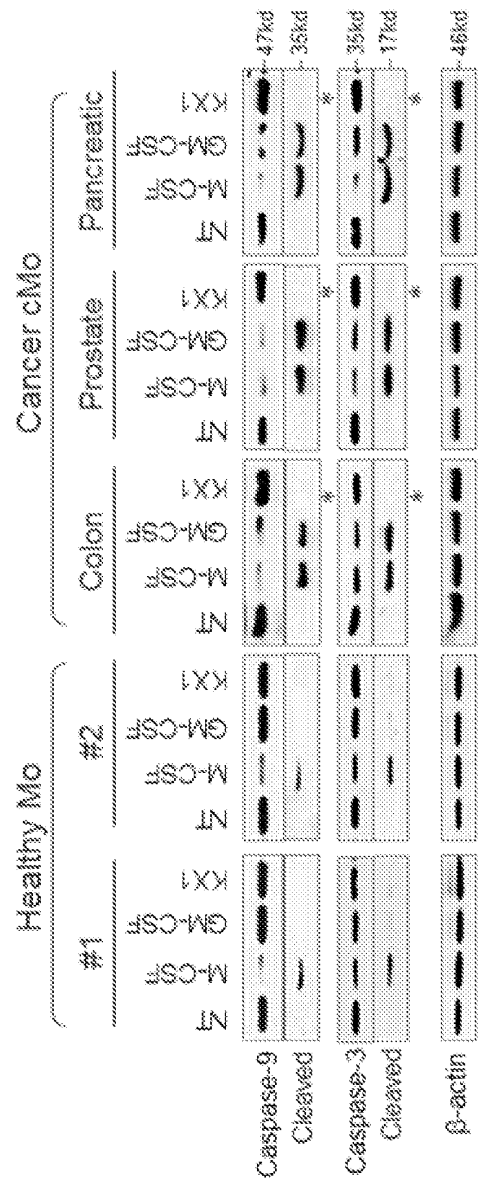


FIG. 8C

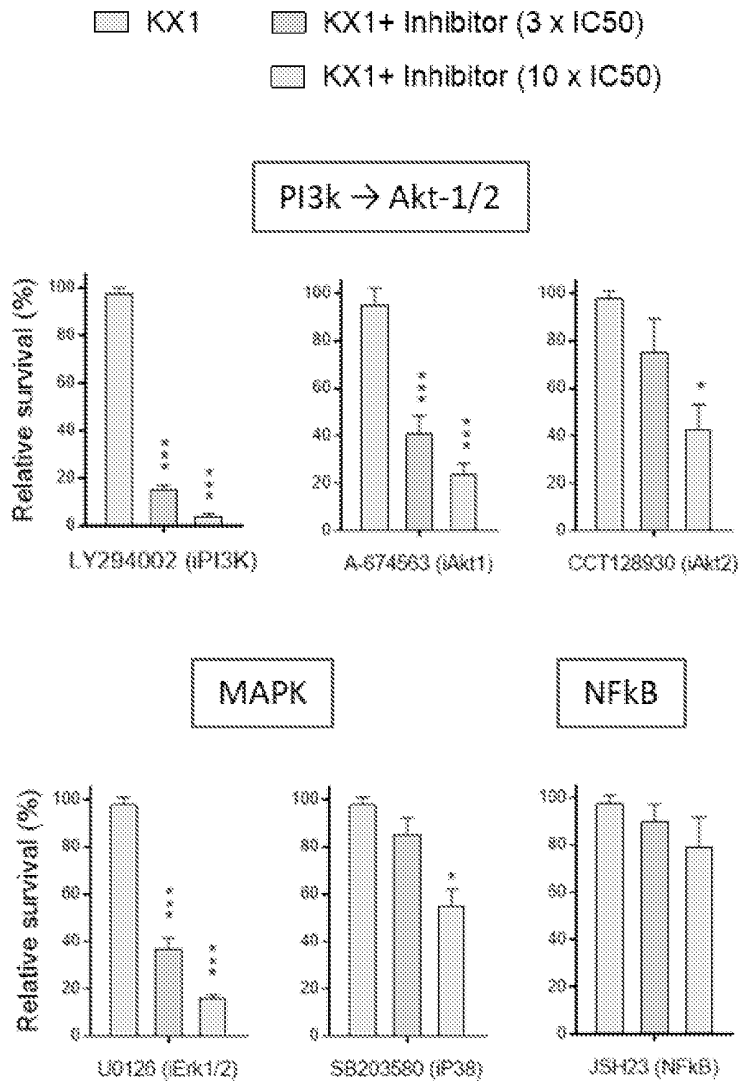


FIG. 9A

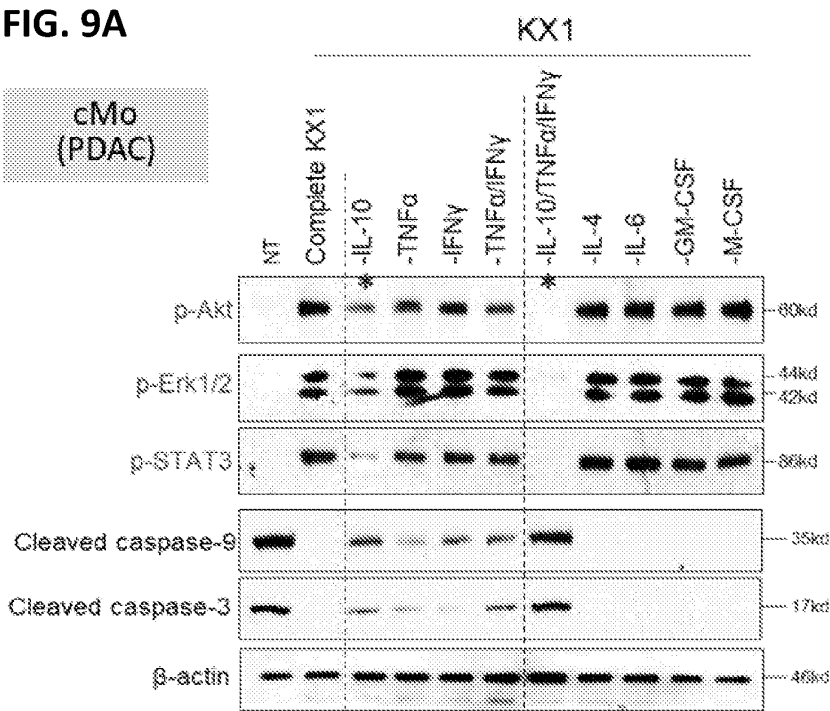


FIG. 9B

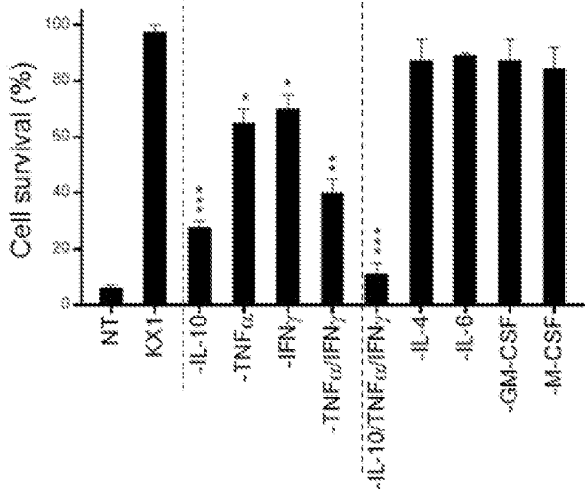


FIG. 9C

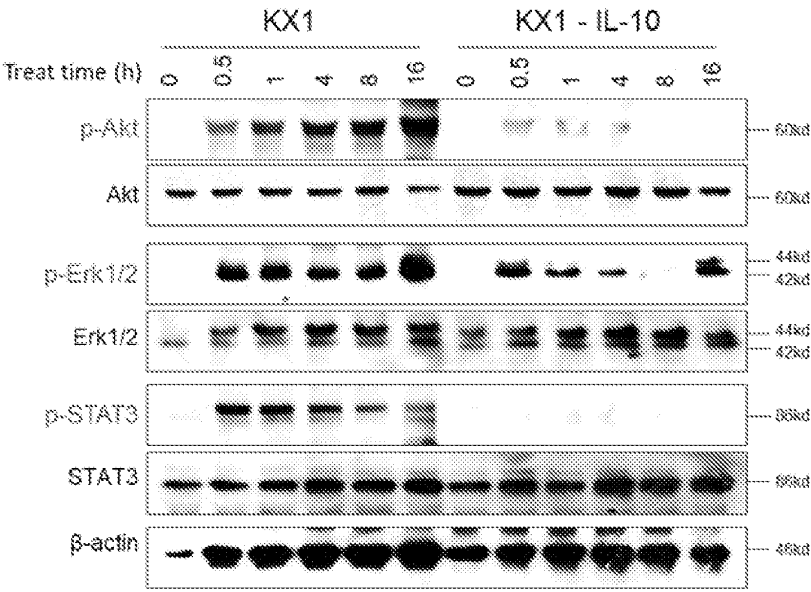


FIG. 9D

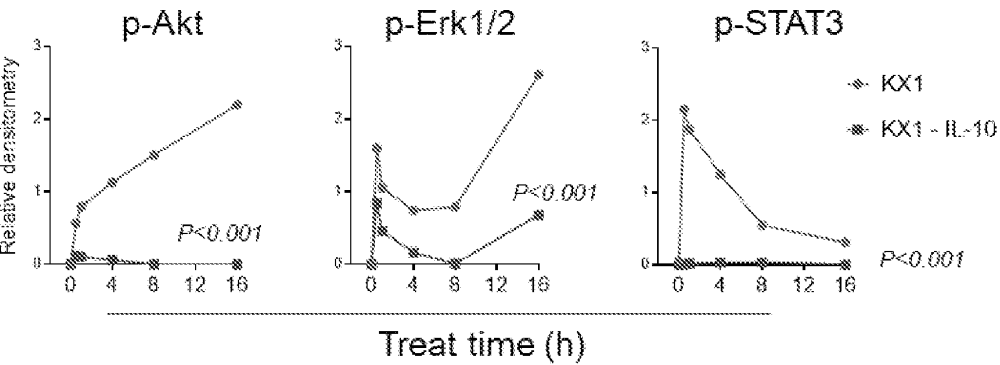
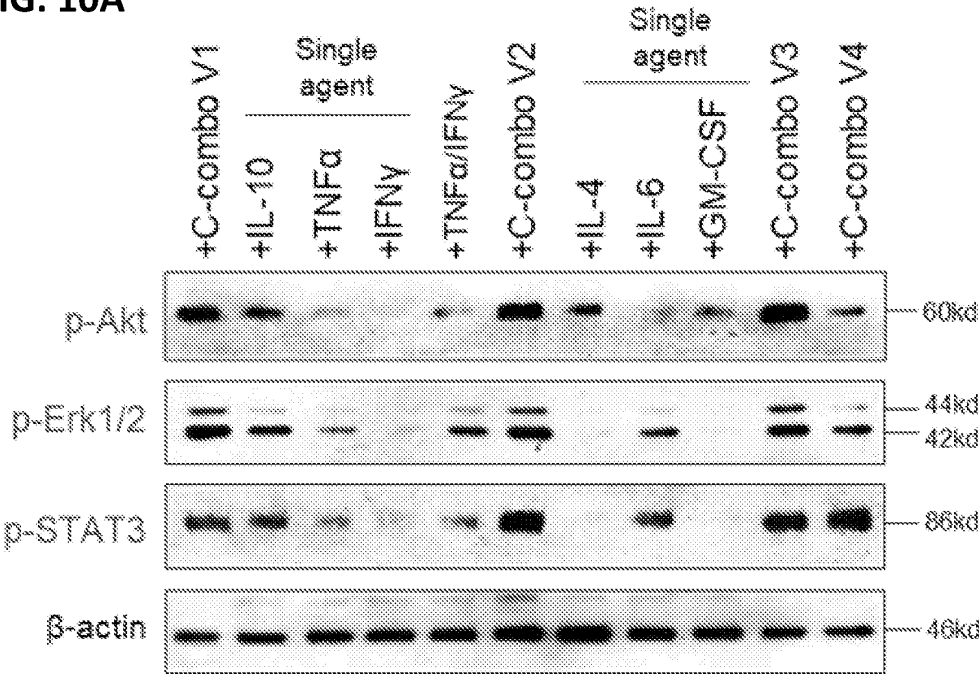
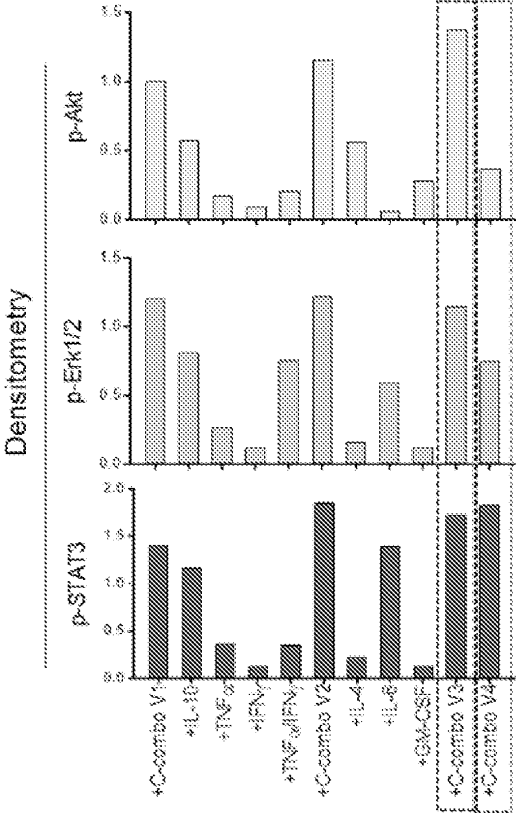


FIG. 10A



C-combo V1: IL-10+TNFα+IFNγ (50ng/ml, each cytokine)
C-combo V2: IL-10+TNFα+IFNγ+IL-6 +GMCSF (50ng/ml, each cytokine)
C-combo V3: IL-22+TNFα+IFNγ+IL-6+GMCSF (IL-22 replaces IL-10, 50ng/ml each cytokine)
C-combo V4: TNFα+IFNγ+IL-6^{high}+GMCSF (IL-10-depleted, IL-6 100ng/ml, 50ng/ml of each others)

FIG. 10B



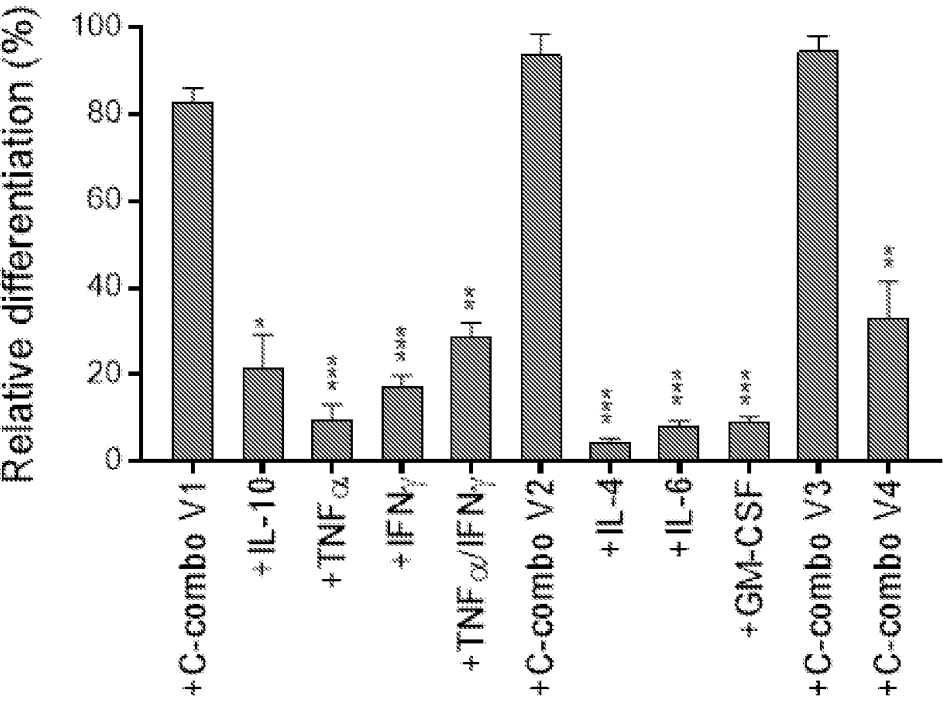
C-combo V1: IL-10+TNF α +IFN γ (50ng/ml, each cytokine)

C-combo V2: IL-10+TNF α +IFN γ +IL-6 +GMCSF (50ng/ml, each cytokine)

C-combo V3: IL-22+TNF α +IFN γ +IL-6+GMCSF (IL-22 replaces IL-10, 50ng/ml each cytokine)

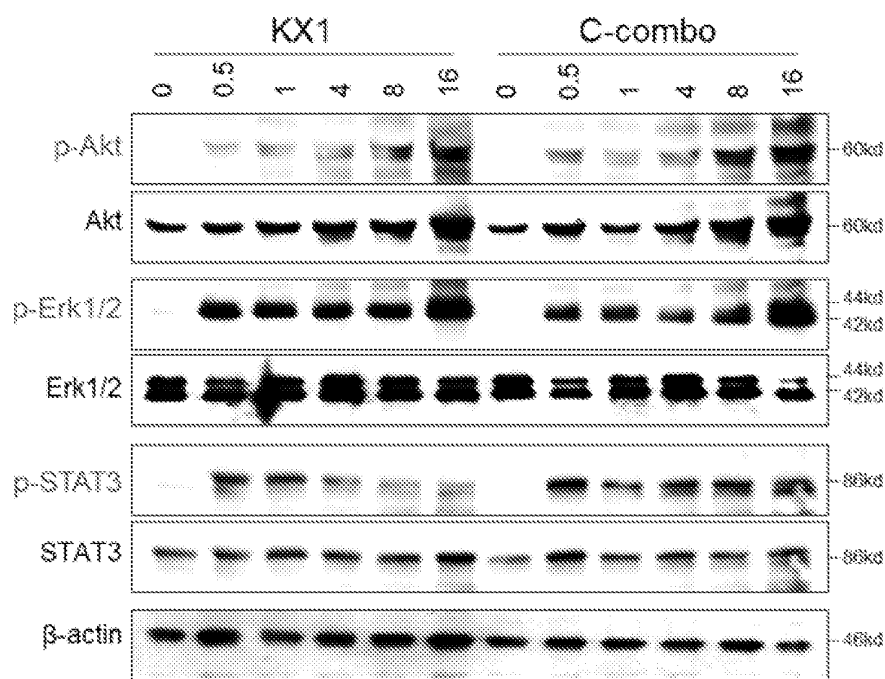
C-combo V4: TNF α +IFN γ +IL-6^{high}+GMCSF (IL-10-depleted, IL-6 100ng/ml, 50ng/ml of each others)

FIG. 10C



C-combo V1: IL-10+TNF α +IFN γ (50ng/ml, each cytokine)
C-combo V2: IL-10+TNF α +IFN γ +IL-6 +GMCSF (50ng/ml, each cytokine)
C-combo V3: IL-22+TNF α +IFN γ +IL-6+GMCSF (IL-22 replaces IL-10, 50ng/ml each cytokine)
C-combo V4: TNF α +IFN γ +IL-6^{high}+GMCSF (IL-10-depleted, IL-6 100ng/ml, 50ng/ml of each others)

FIG. 10D



C-combo (6-factor):
IL-10+TNF α +IFN γ +IL-4+IL-6+GMCSF

- C-combo V1: IL-10+TNF α +IFN γ (50ng/ml, each cytokine)
- C-combo V2: IL-10+TNF α +IFN γ +IL-6 +GMCSF (50ng/ml, each cytokine)
- C-combo V3: IL-22+TNF α +IFN γ +IL-6+GMCSF (IL-22 replaces IL-10, 50ng/ml each cytokine)
- C-combo V4: TNF α +IFN γ +IL-6^{high}+GMCSF (IL-10-depleted, IL-6 100ng/ml, 50ng/ml of each others)

FIG. 11

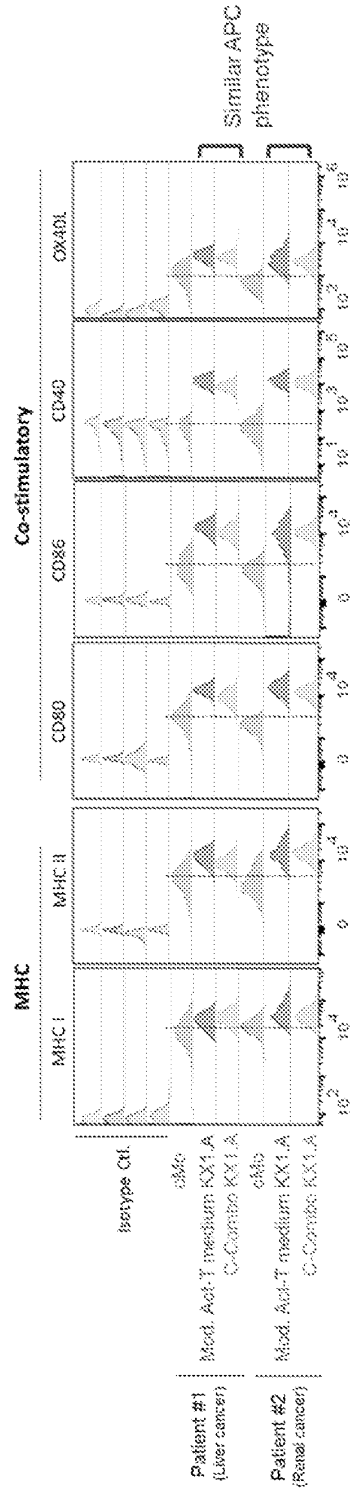


FIG. 12A

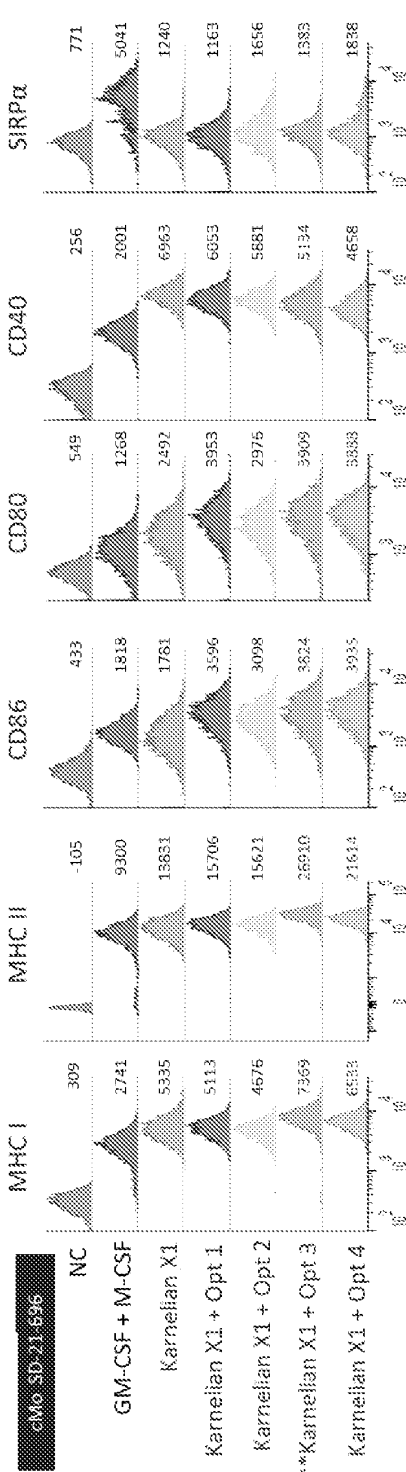


FIG. 12B

- Opt 1: IFNα/IFNγ/TNFα
- Opt 2: IFNα/IFNγ/TNFα/Poly IC/CpG,
- Opt 3: IFNα/IFNγ/TNFα/Poly IC/CpG/CD40L/αPD-L1
- Opt 4: IFNα/IFNγ/TNFα/Poly IC/CpG/CD40L/αPD-L1/TPI-1

FIG. 12C

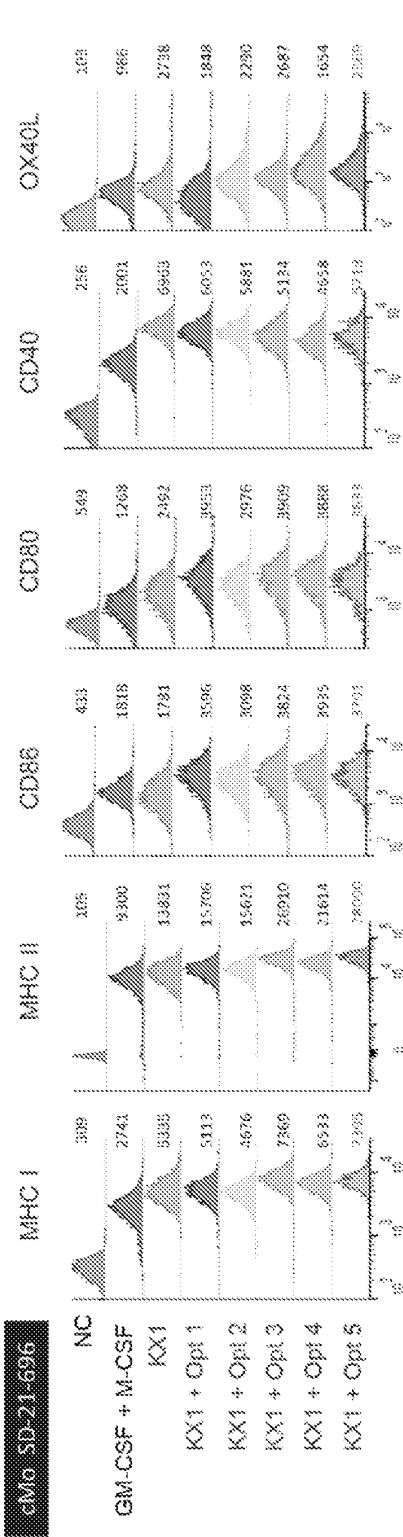


FIG. 12D

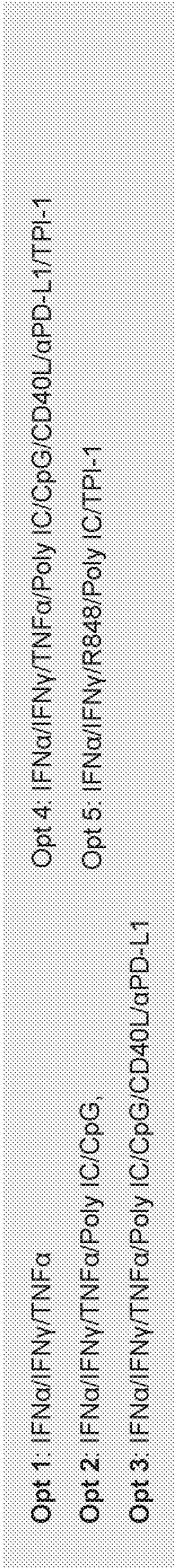


FIG. 12E

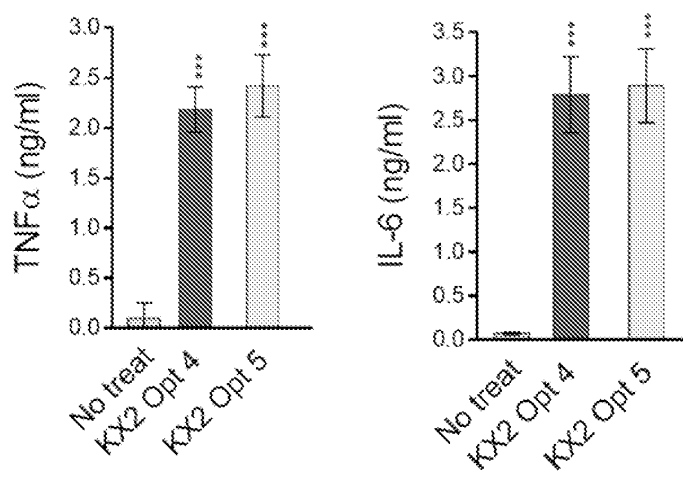


FIG. 12F

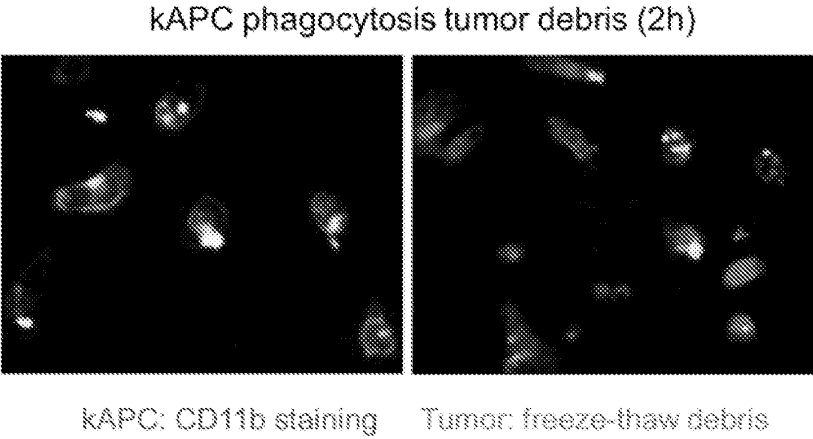


FIG. 12G

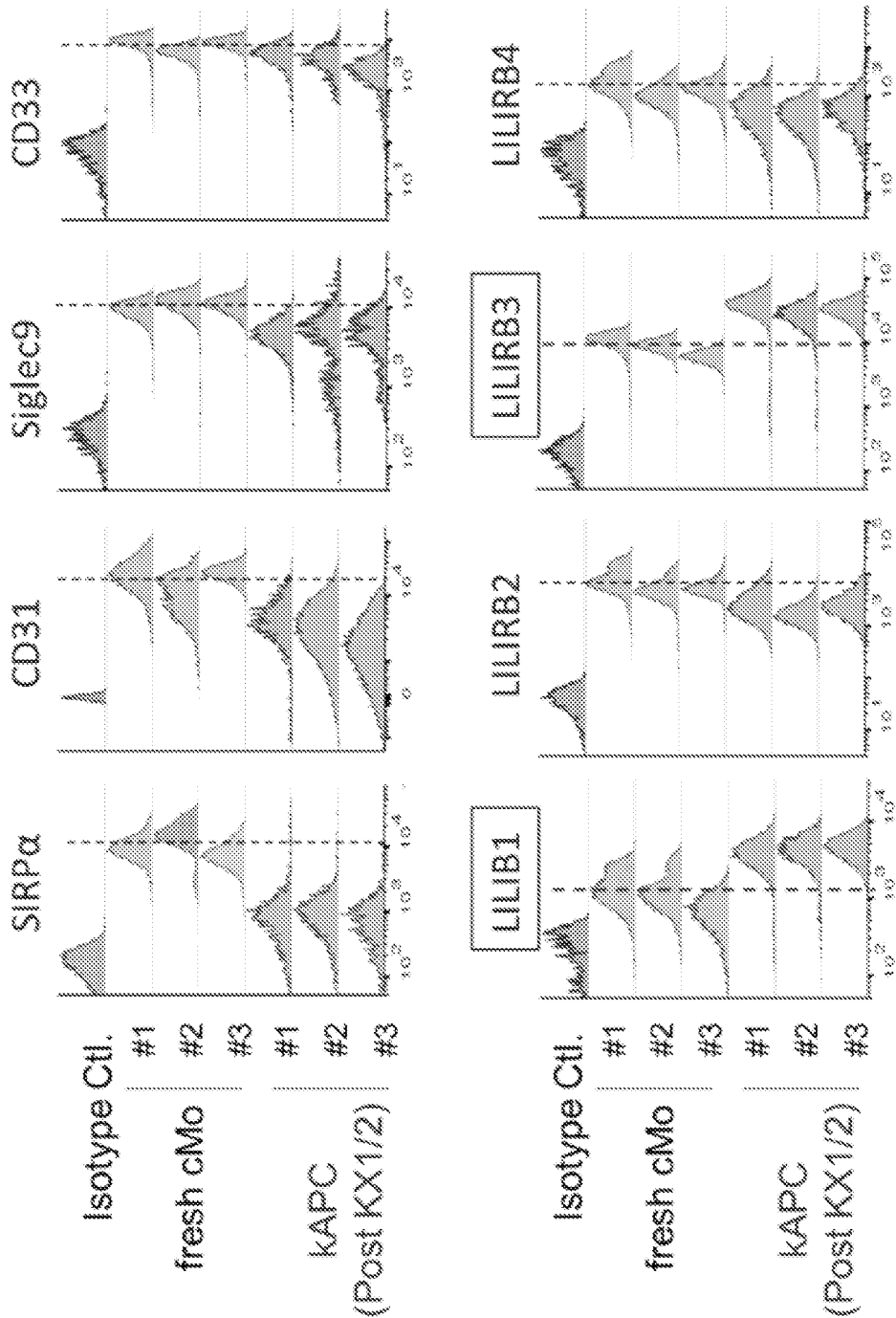


FIG. 12H

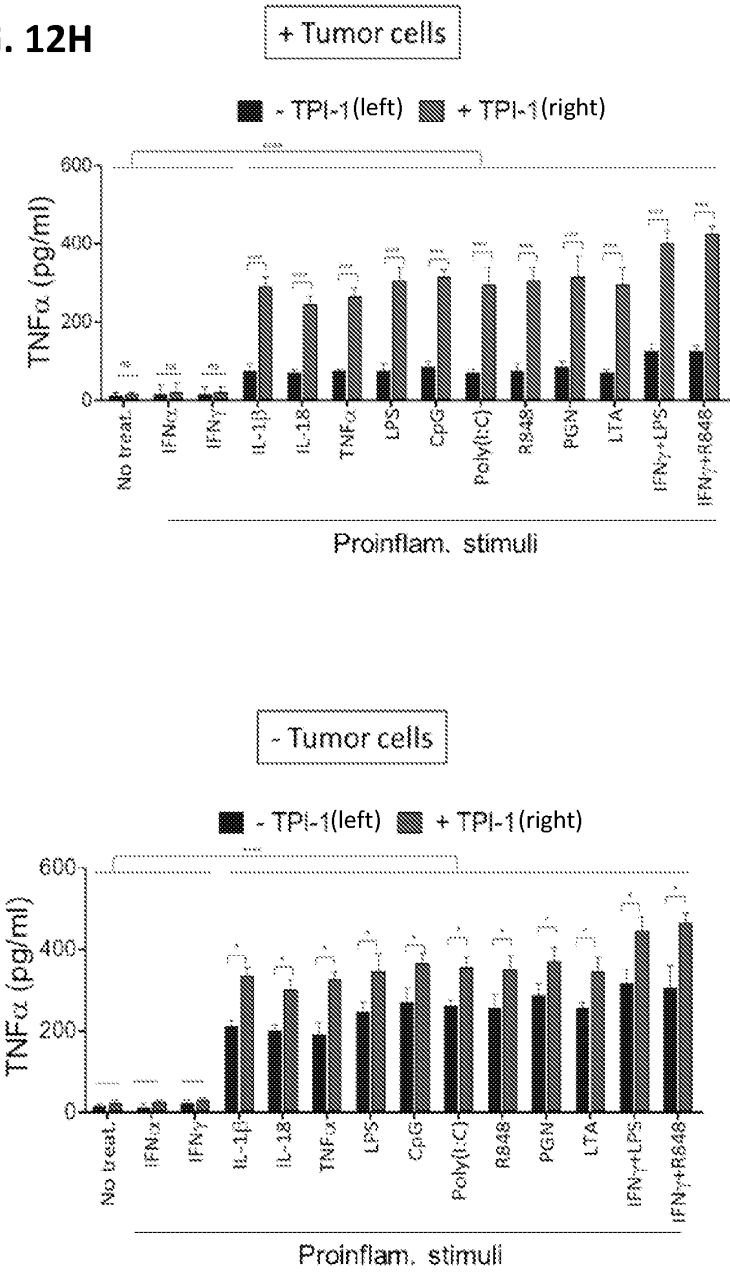


FIG. 13A

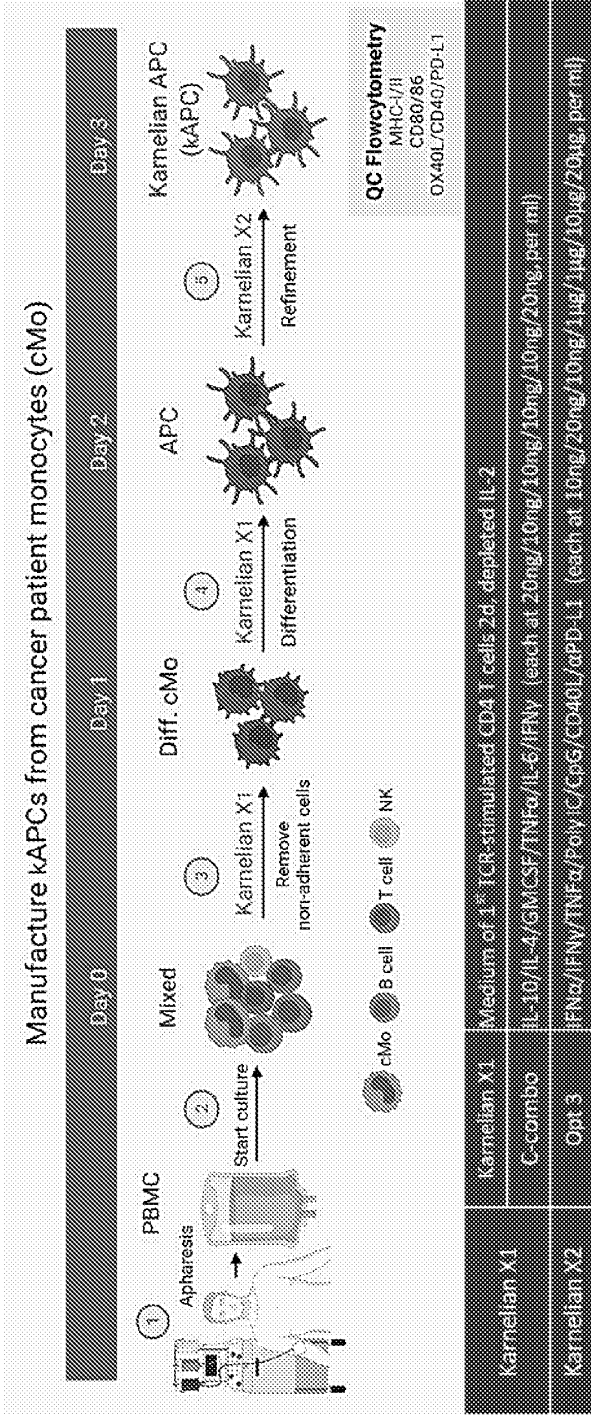


FIG. 13B

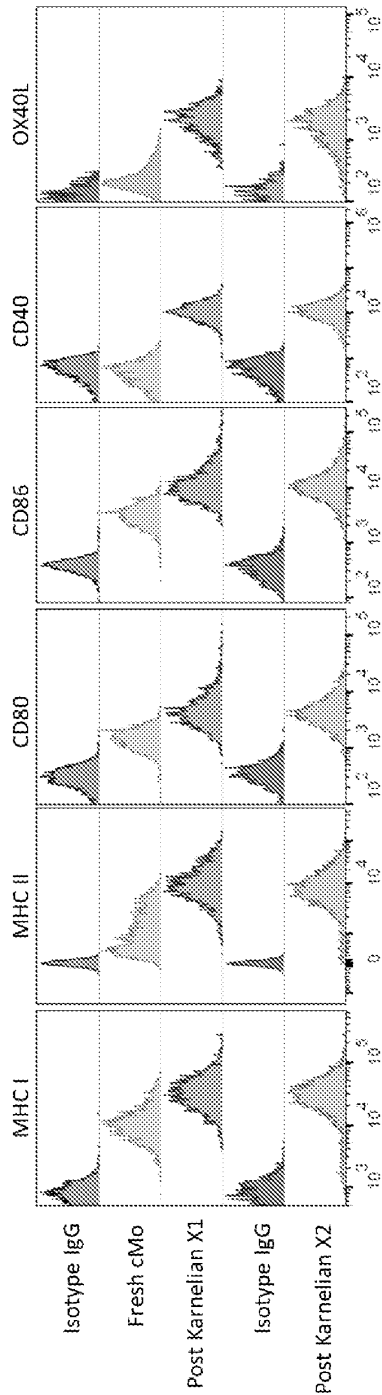


FIG. 14A

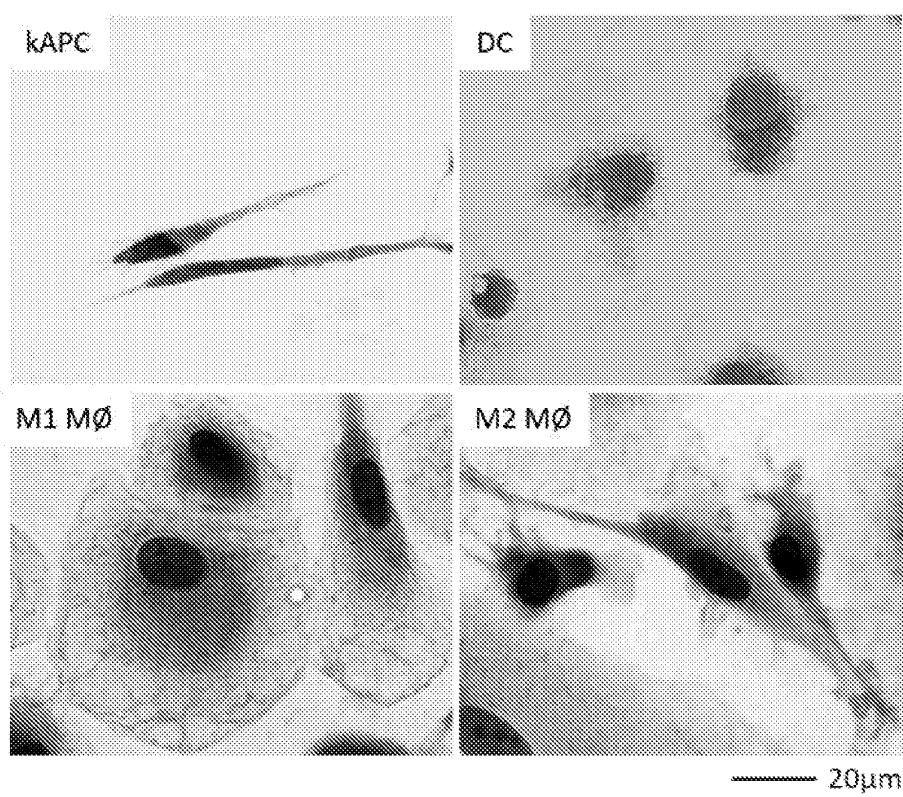


FIG. 14A, cont.

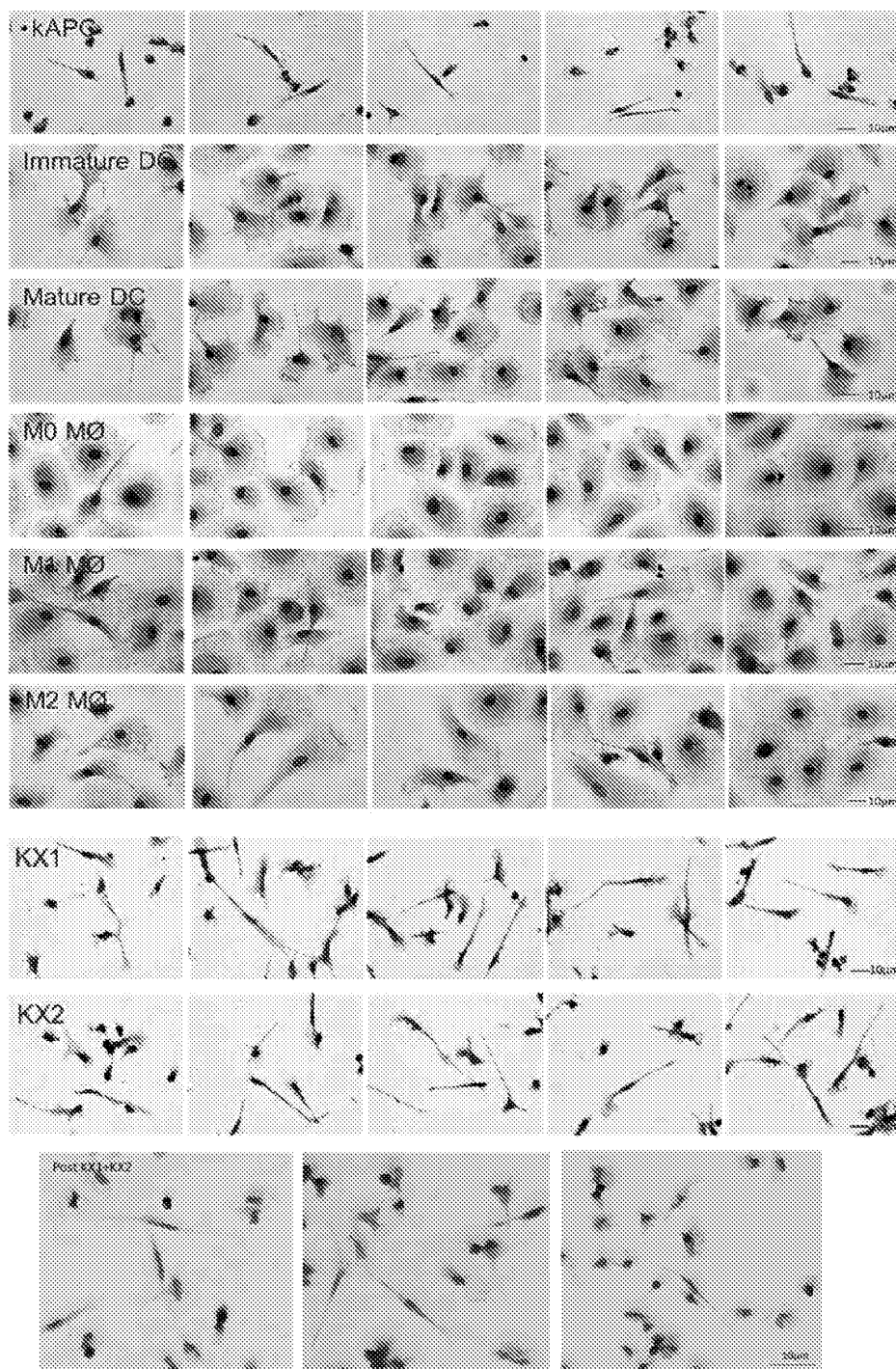


FIG. 14B

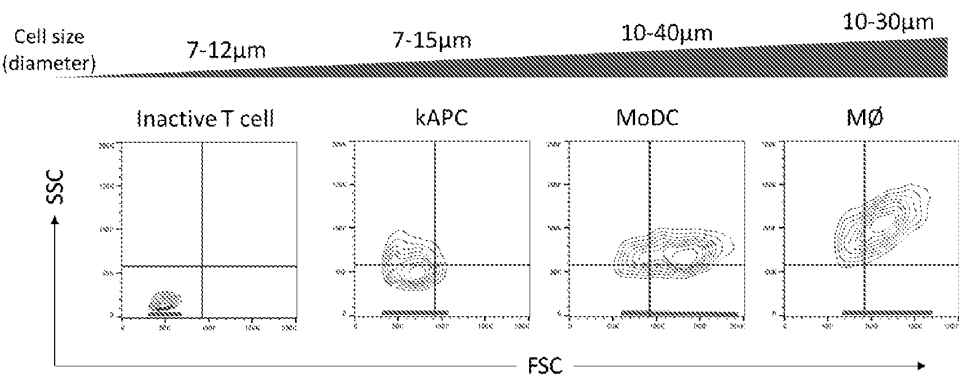


FIG. 15A

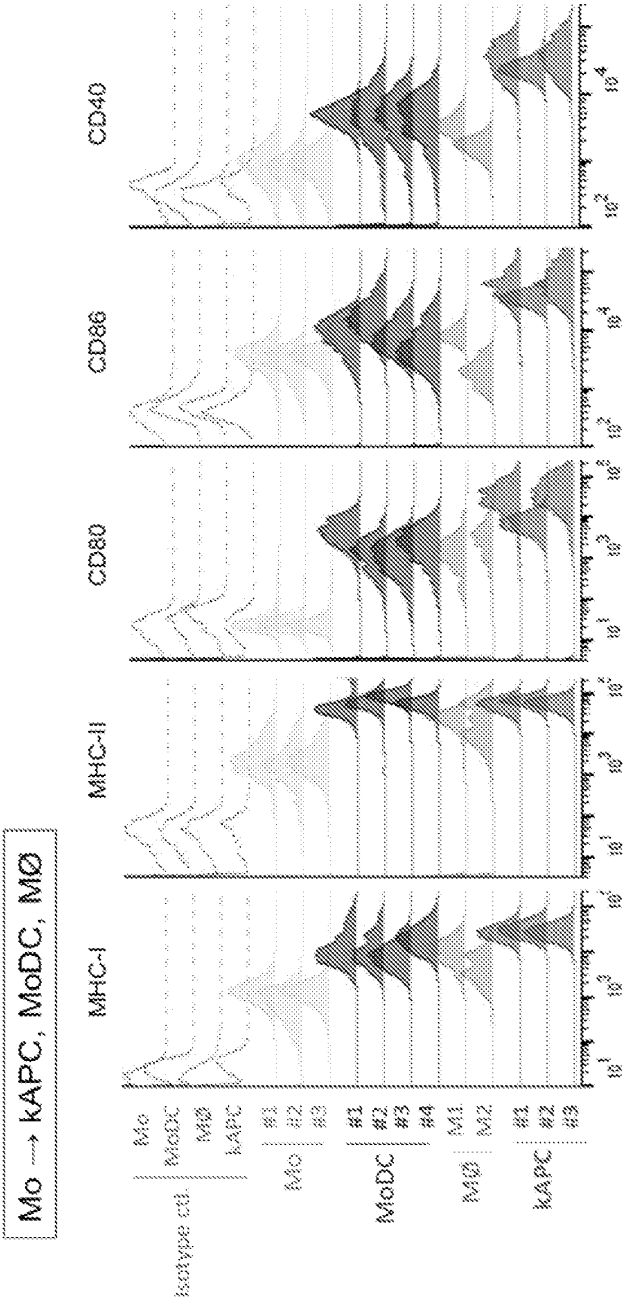
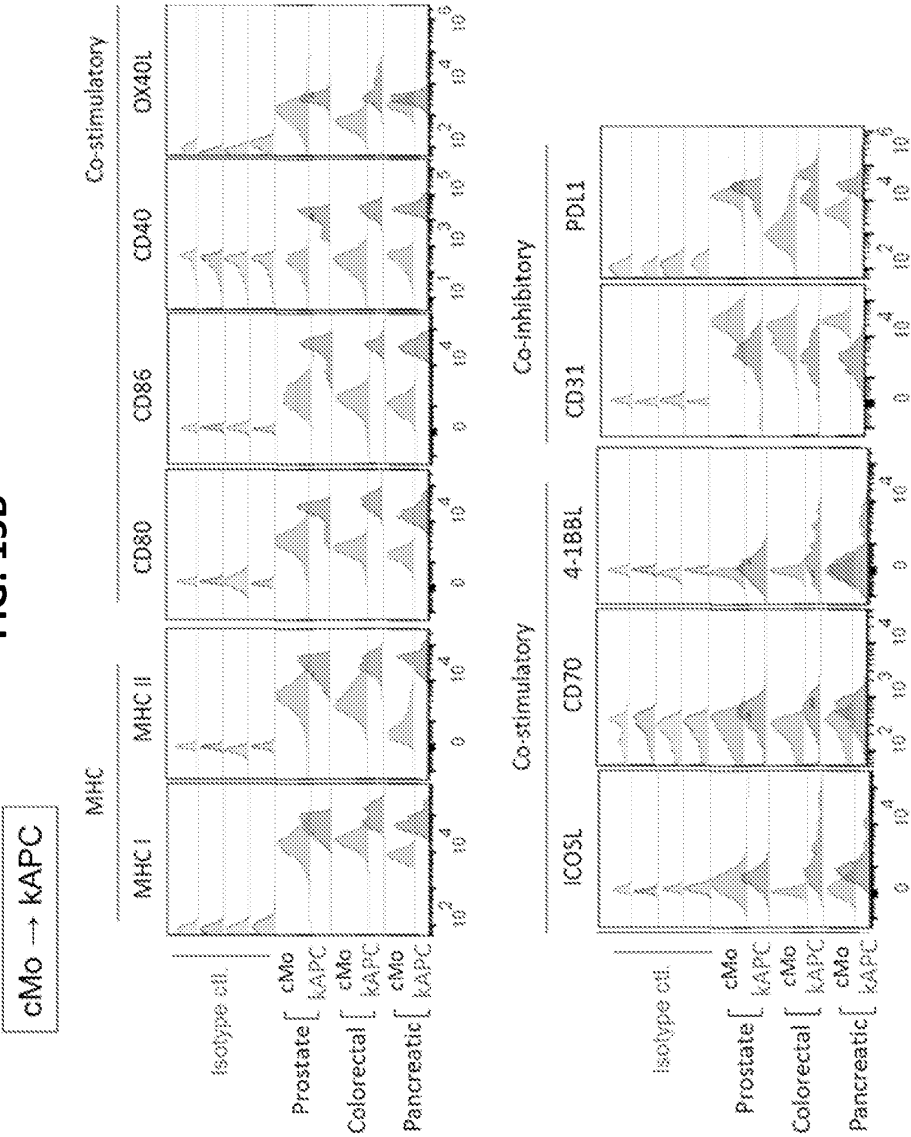
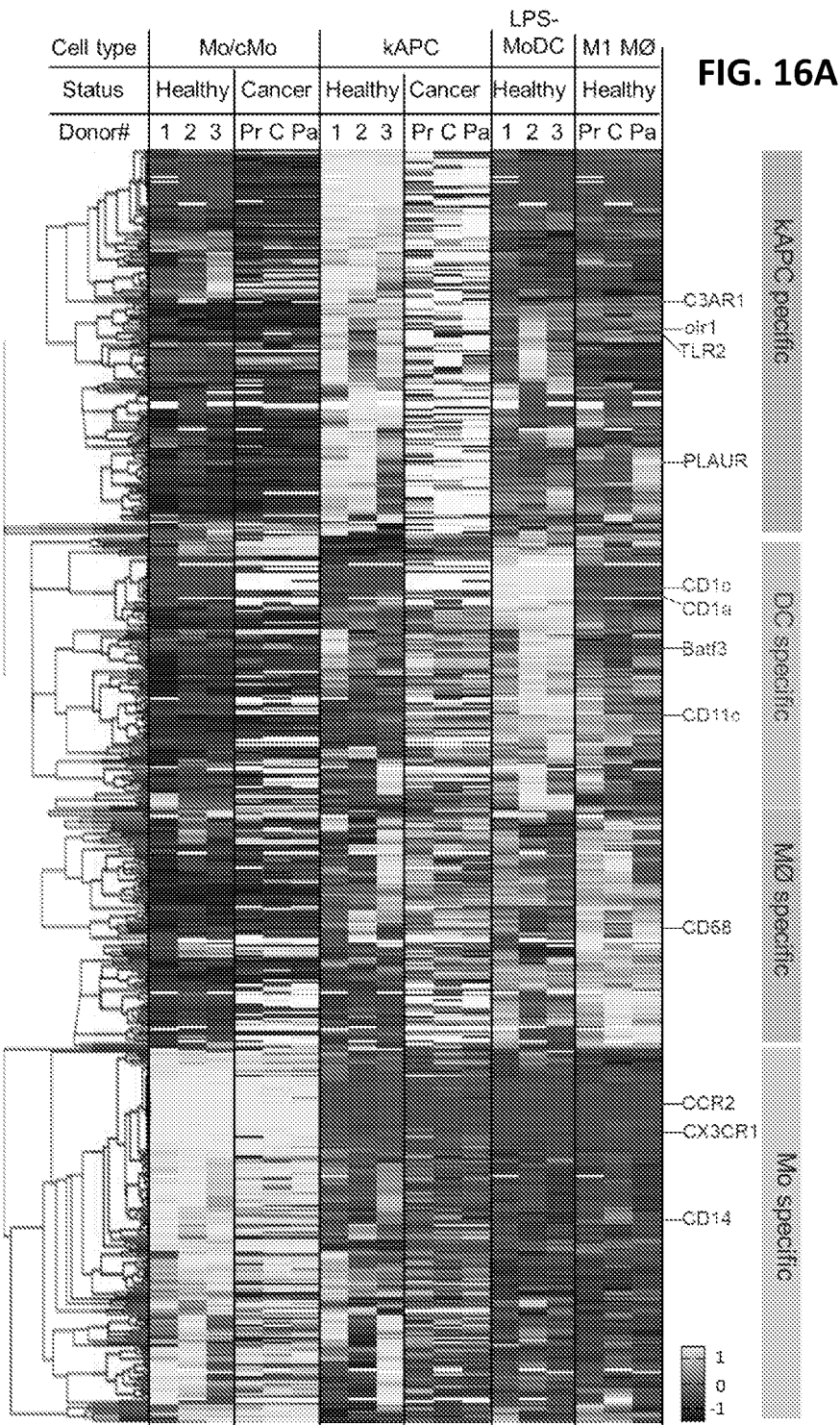


FIG. 15B





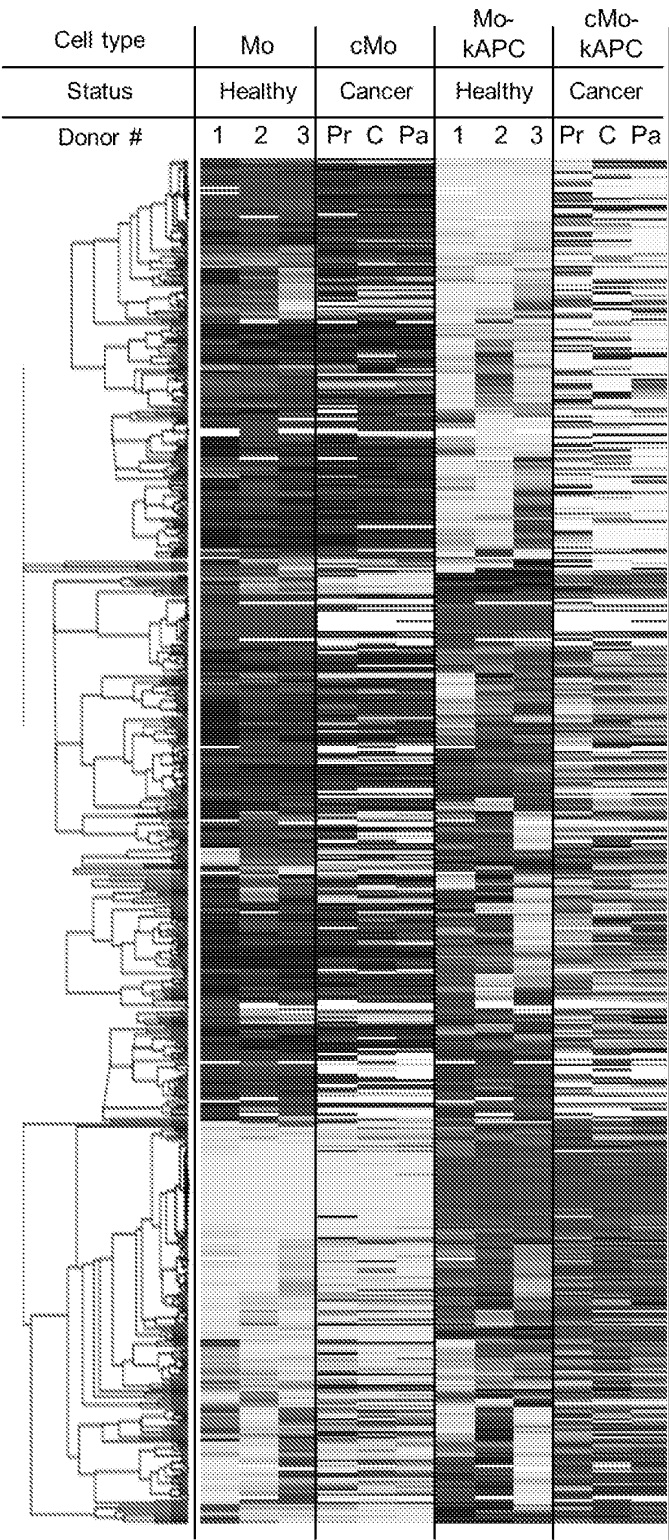


FIG. 16B

FIG. 16C

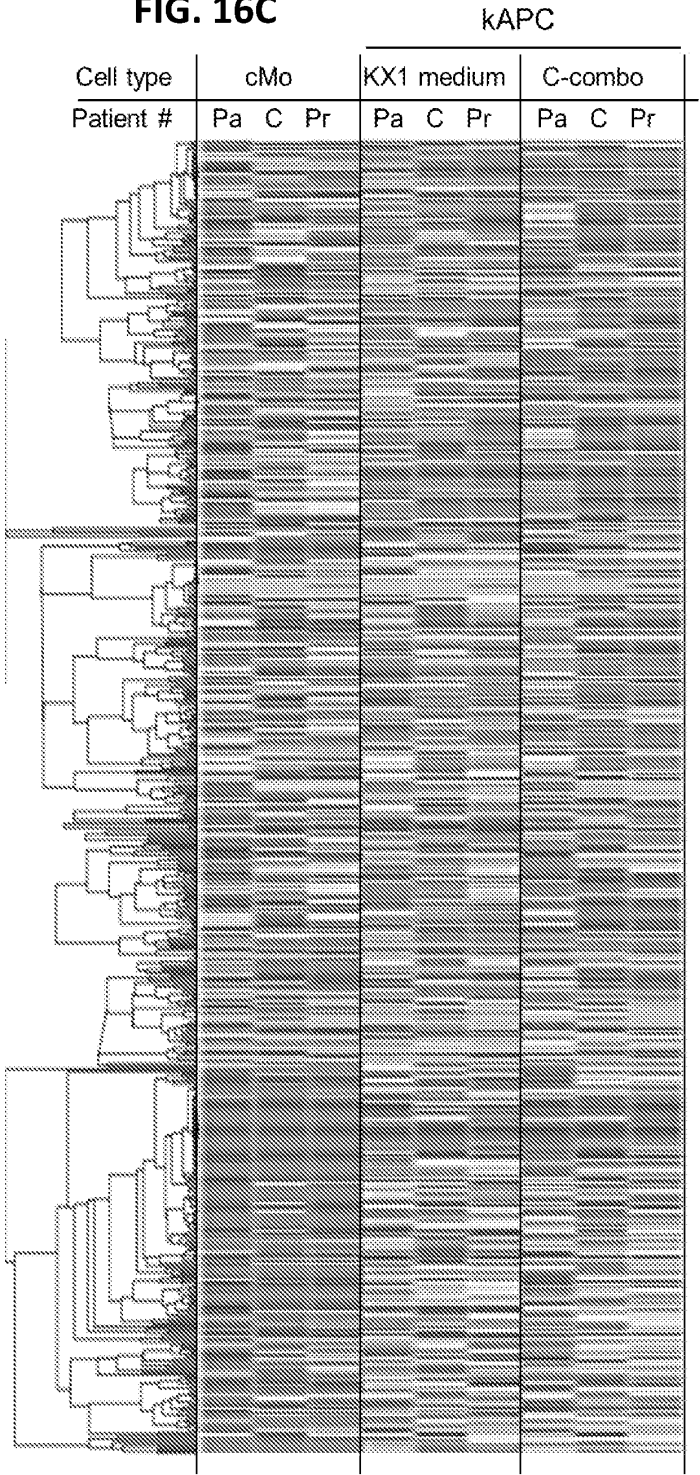


FIG. 17

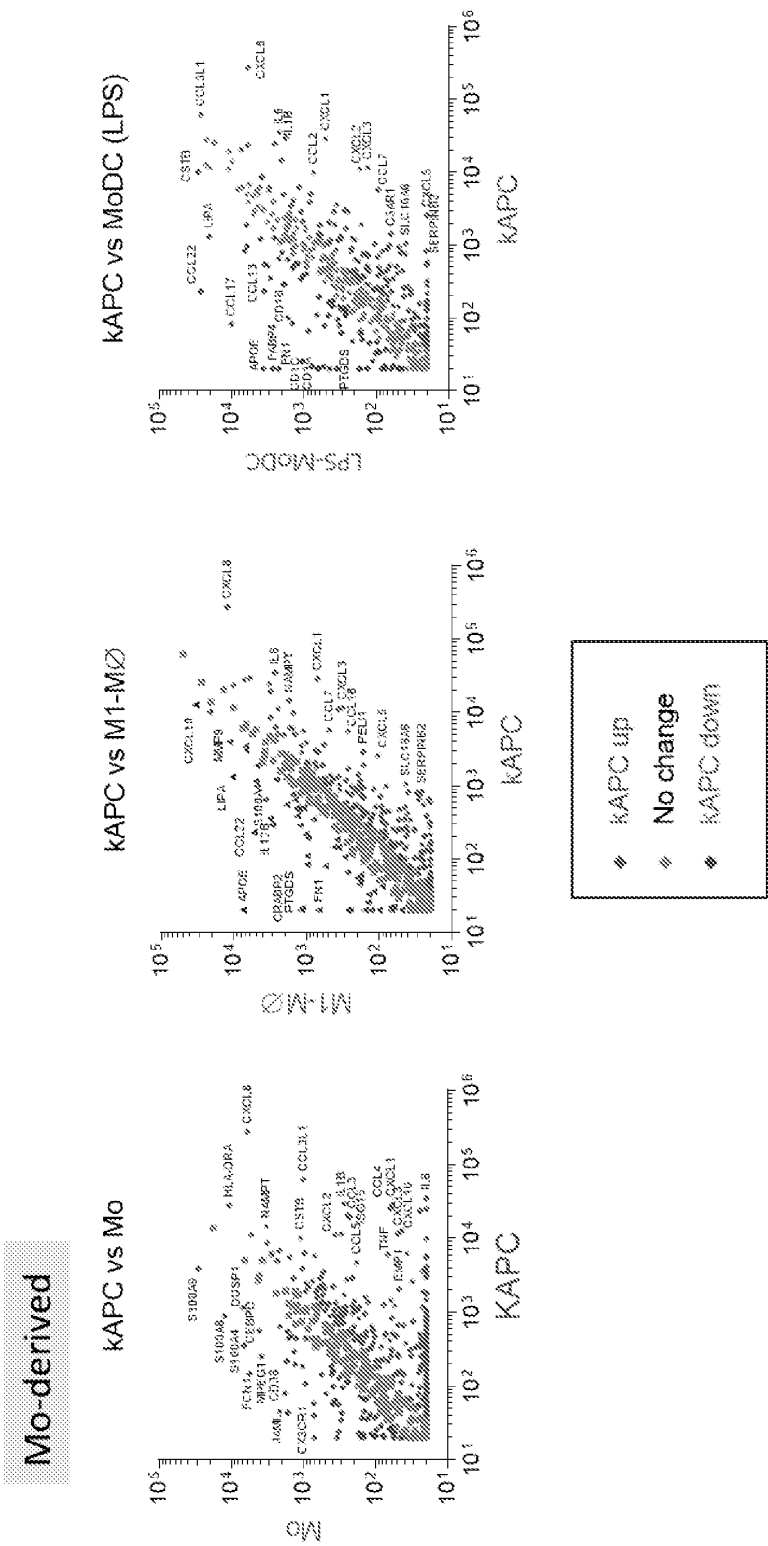


FIG. 17, cont.

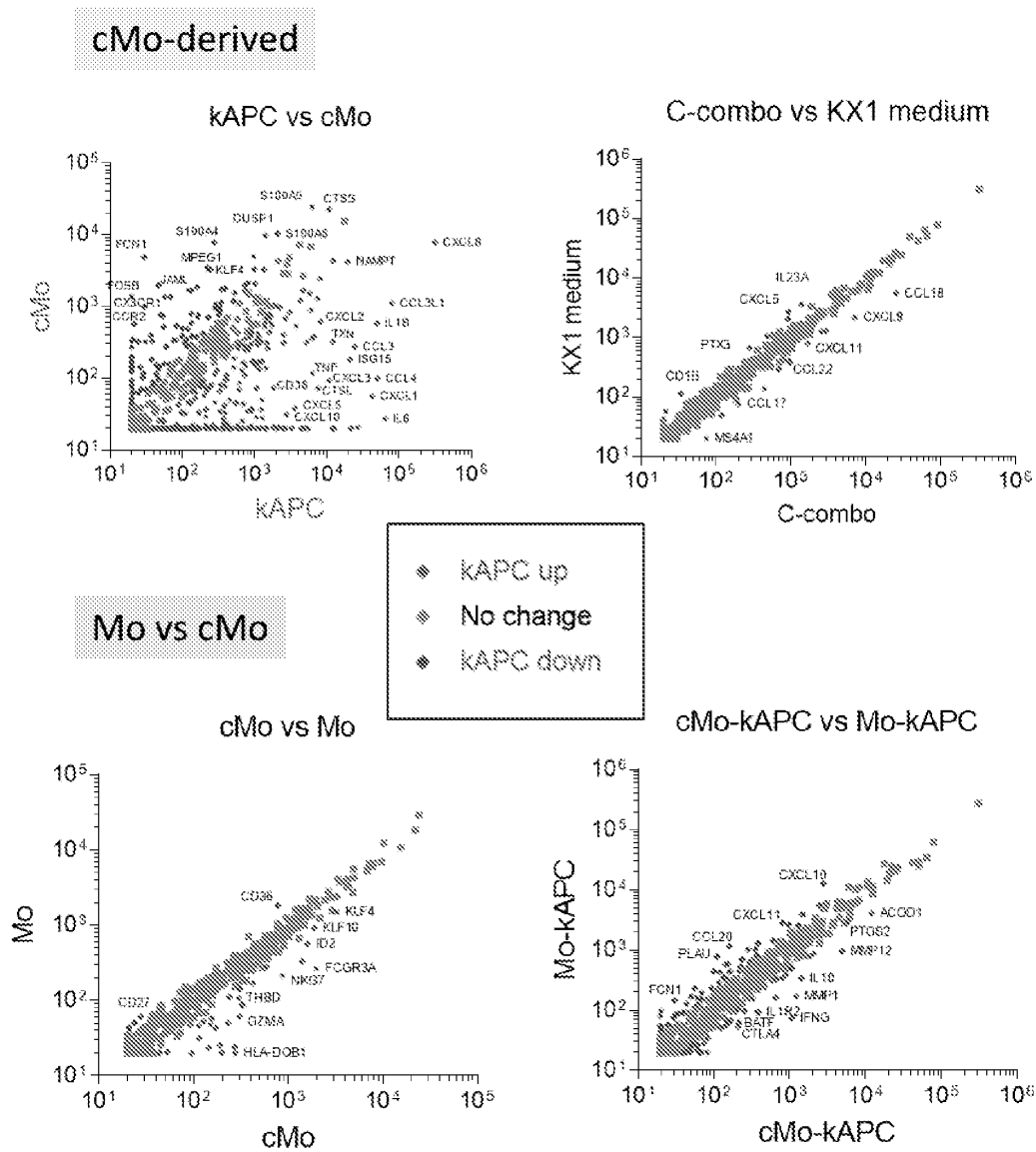


FIG. 18A

Main cell surface markers on human DC subtypes, monocytes-derived DC (MoDc), M1 macrophages and kAPC	
DC subtype	High expressed cell surface markers
cDC1	CD141 CLEC9A XCR1 CD103
cDC2	CD1c CD172a(SIRPα)
pDC	CD303
MoDC	DEC205 CD172a(SIRPα) CD1c CD11c CD303 CD209
M0 (M1)	CD26 CD172a(SIRPα) CD11c CCR2 CCR7 CD14 CD303 PD-L1 CLEC5 CCR1
kAPC	LOX1* uPAR* CD40* TLR2* IL-3R* TREM2* C3AR* IL-3R* PD-L1

FIG. 18B

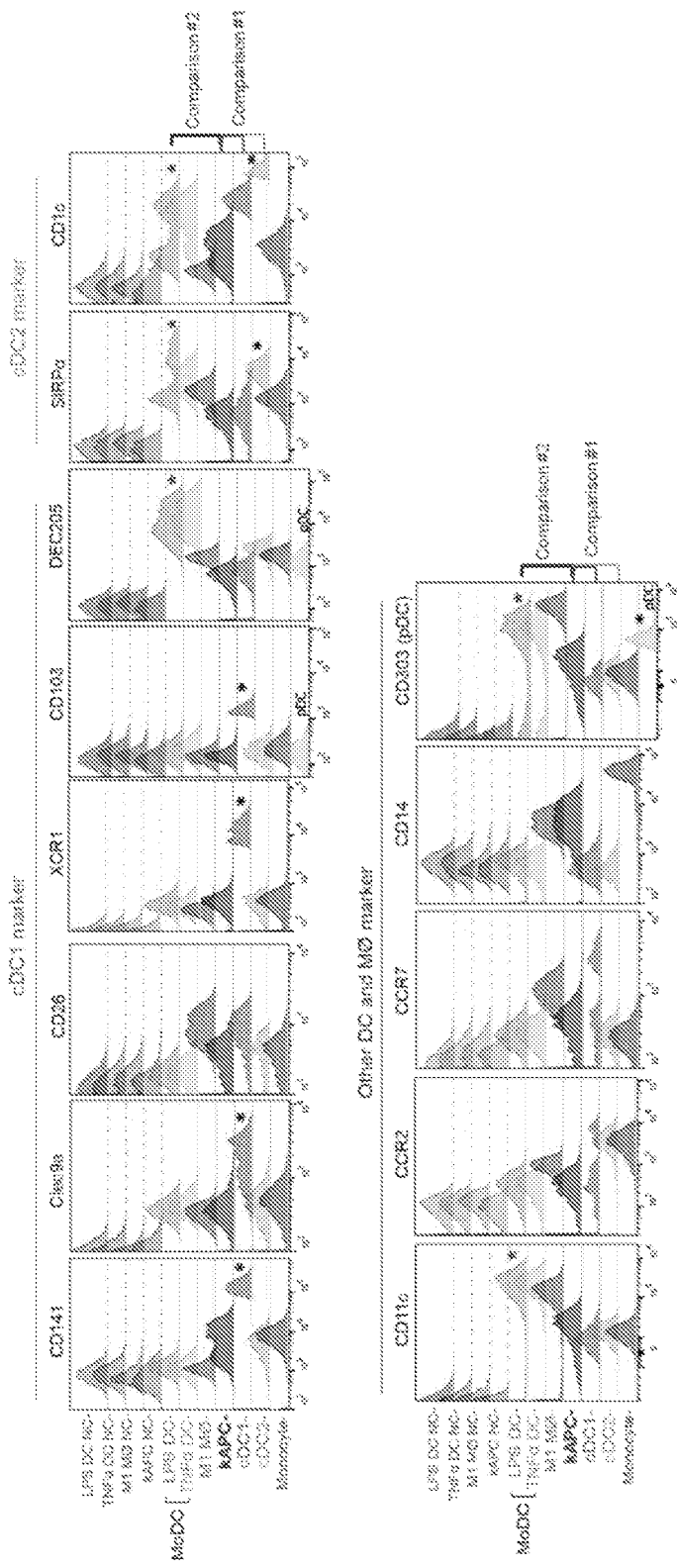
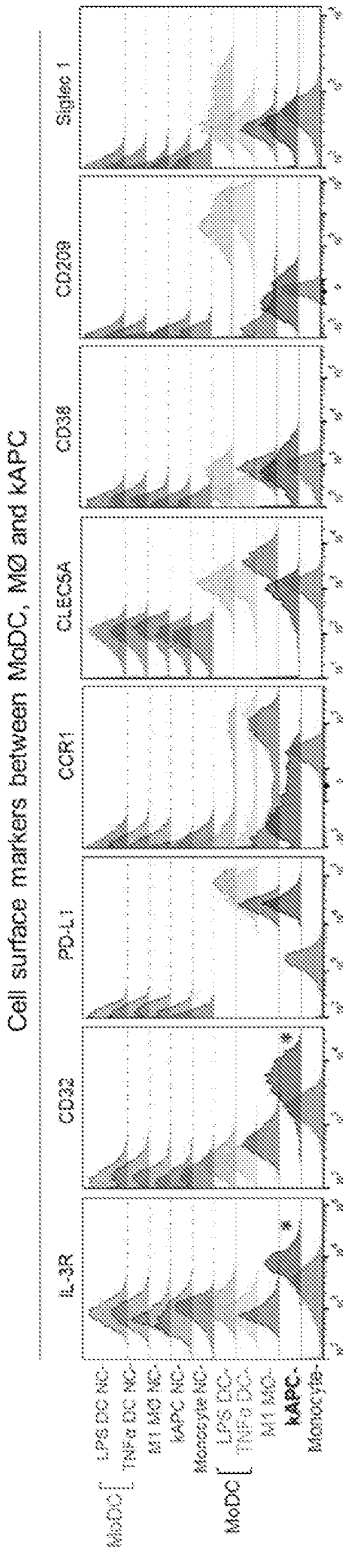


FIG. 19A



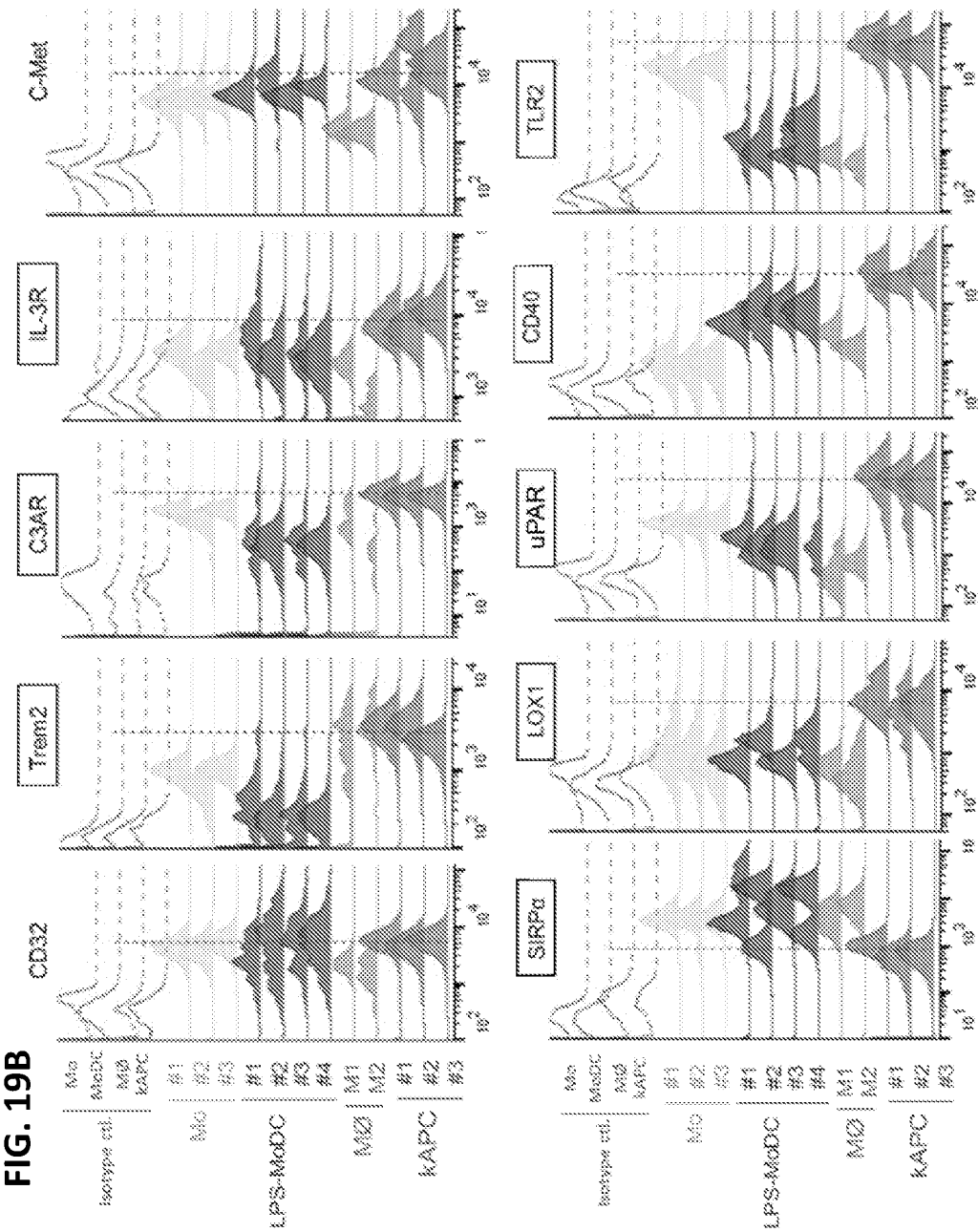


FIG. 19C

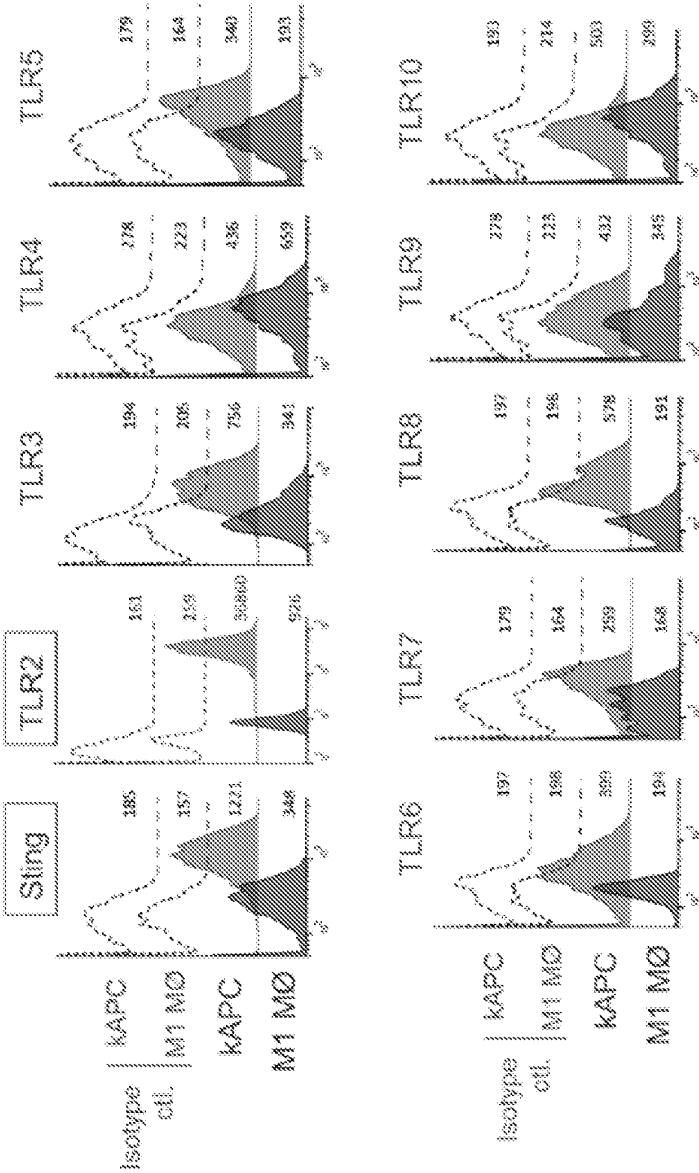


FIG. 20

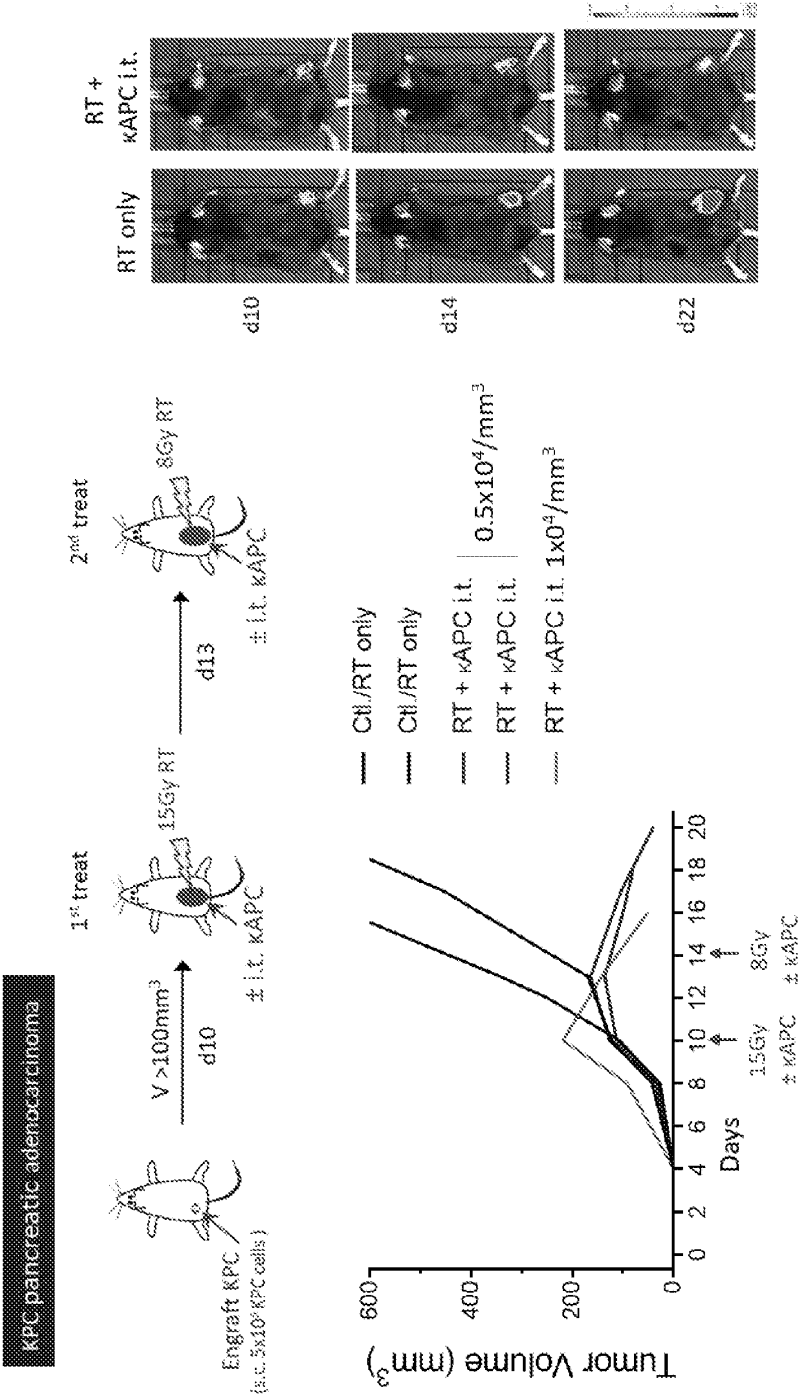
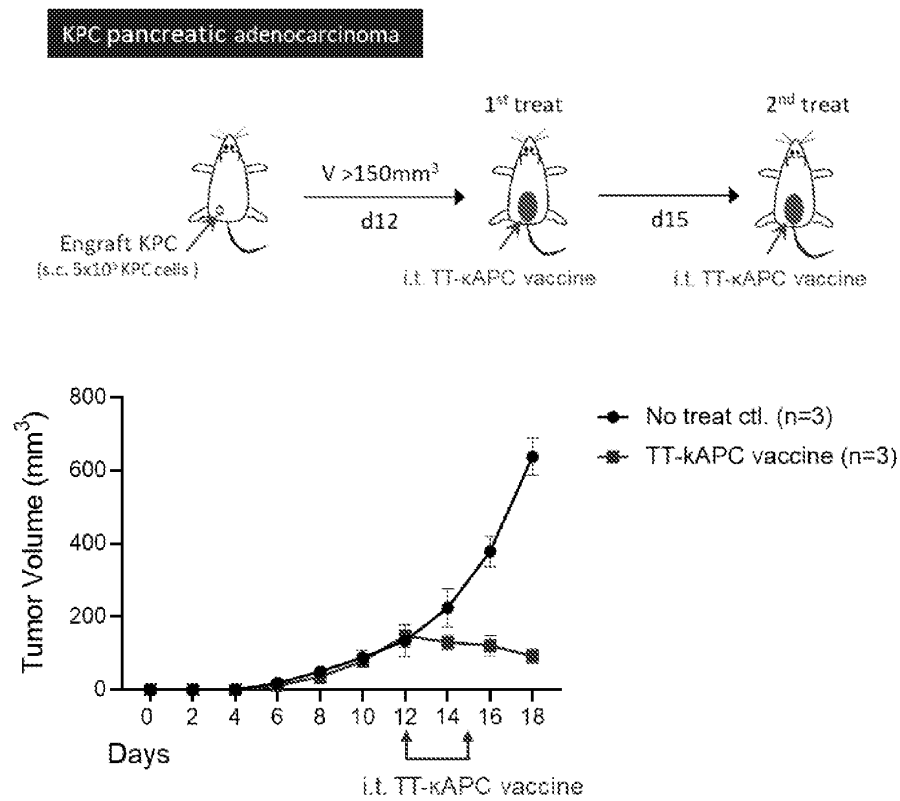
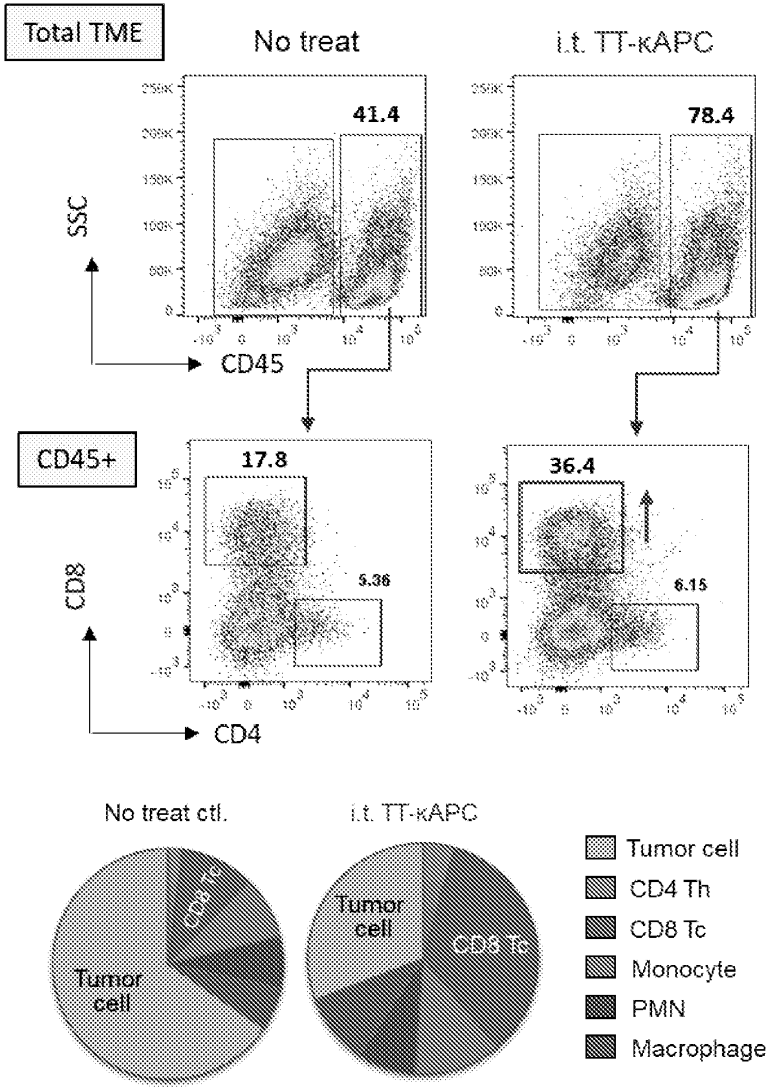


FIG. 21A





Tumor infiltrate	Total CD45 ⁺	CD4 ⁺ T	CD8 ⁺ T	Monocyte	PMN	Macrophage
No treat	43.9±6.7%	1.7±1.1%	8.8±2.0%	7.6±1.7%	6.2±0.5%	5.2±0.7%
i.t. TT-kAPC	75.4±12.4% ^{***}	3.5±3.3% [*]	27.6±5.8% ^{***}	9.8±2.5%	6.6±4.6%	7.9±2.7%

FIG. 21B

FIG. 23A

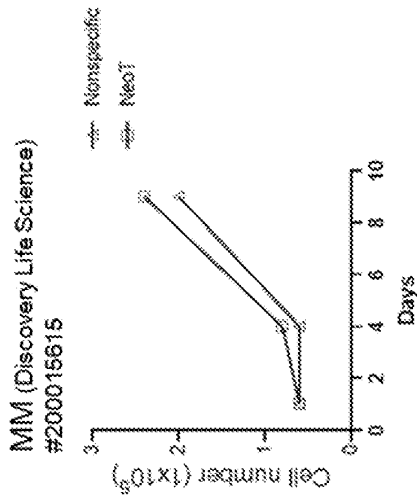


FIG. 23B

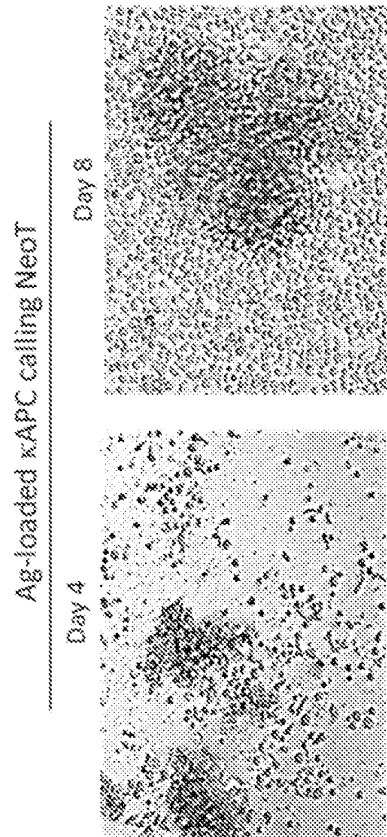


FIG. 23C

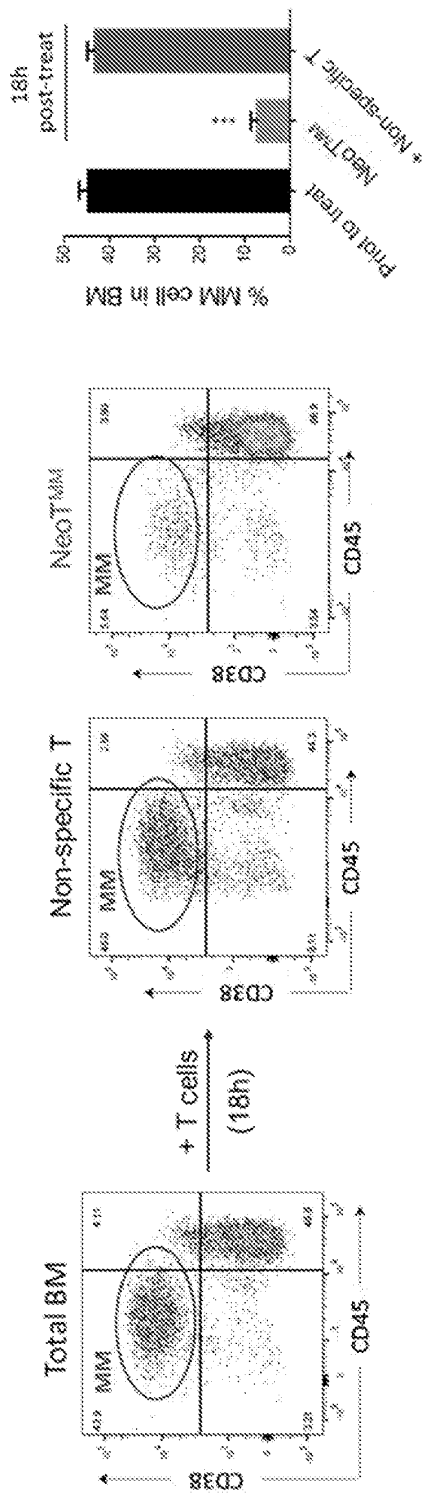


FIG. 23D

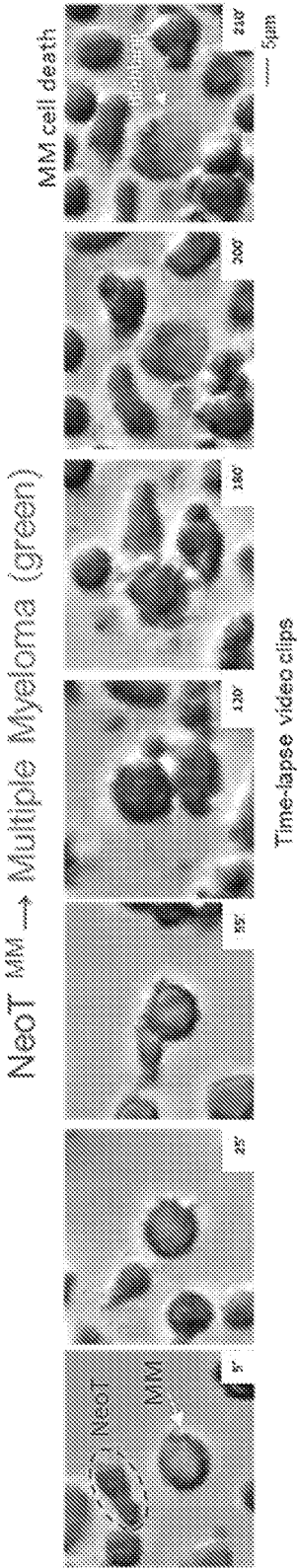


FIG. 24A

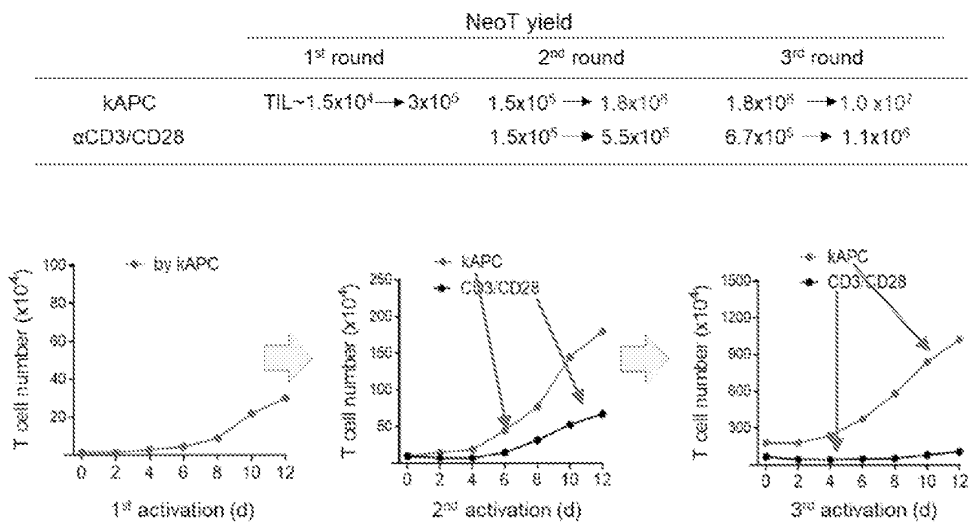


FIG. 24B

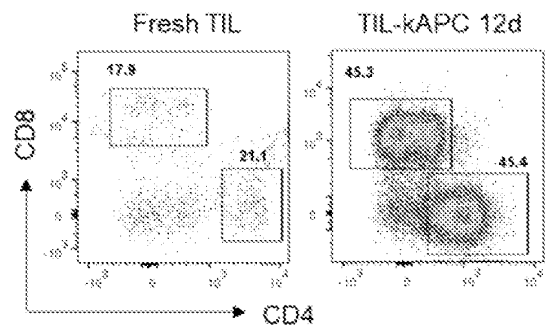


FIG. 24C

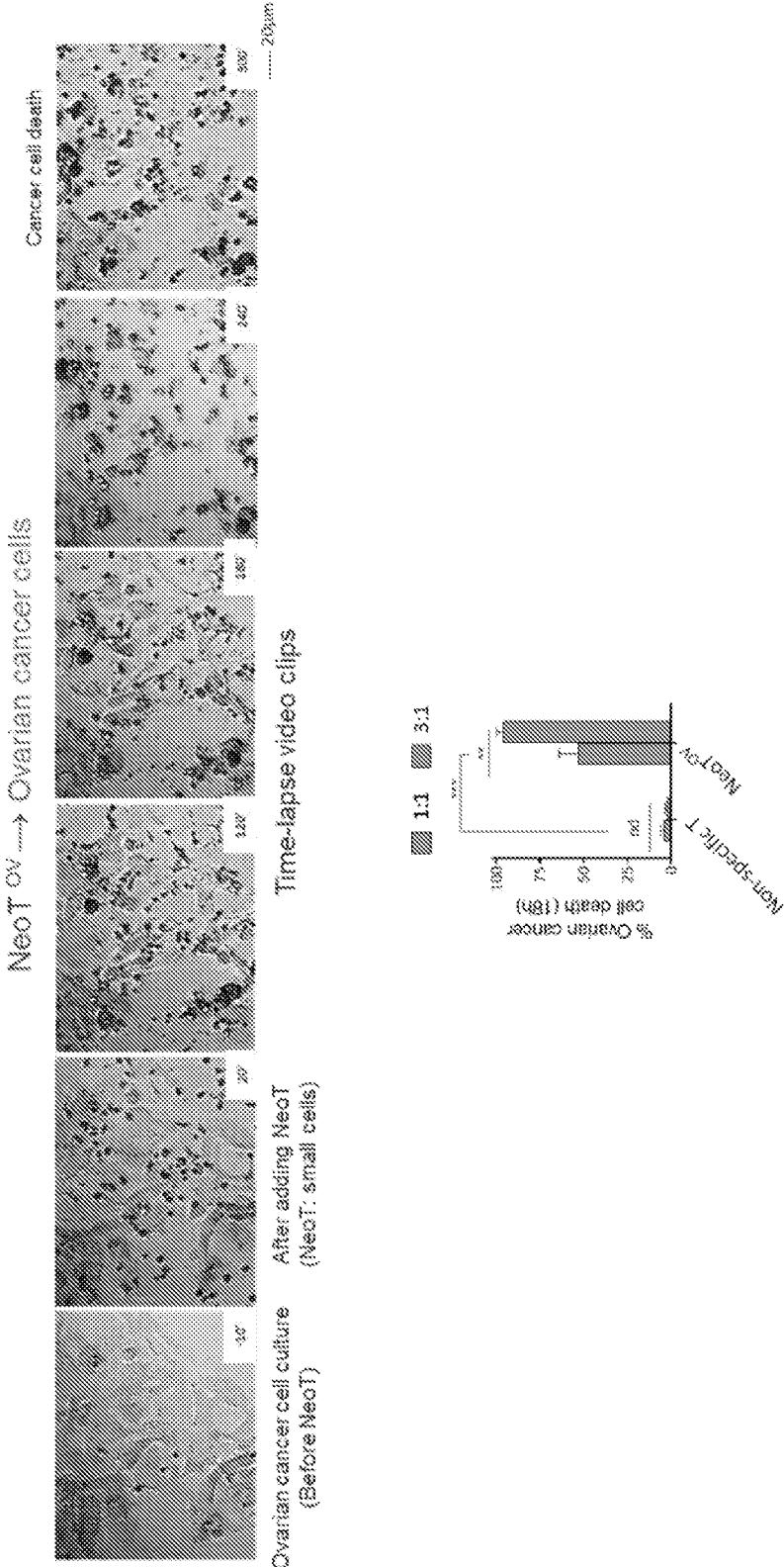


FIG. 25

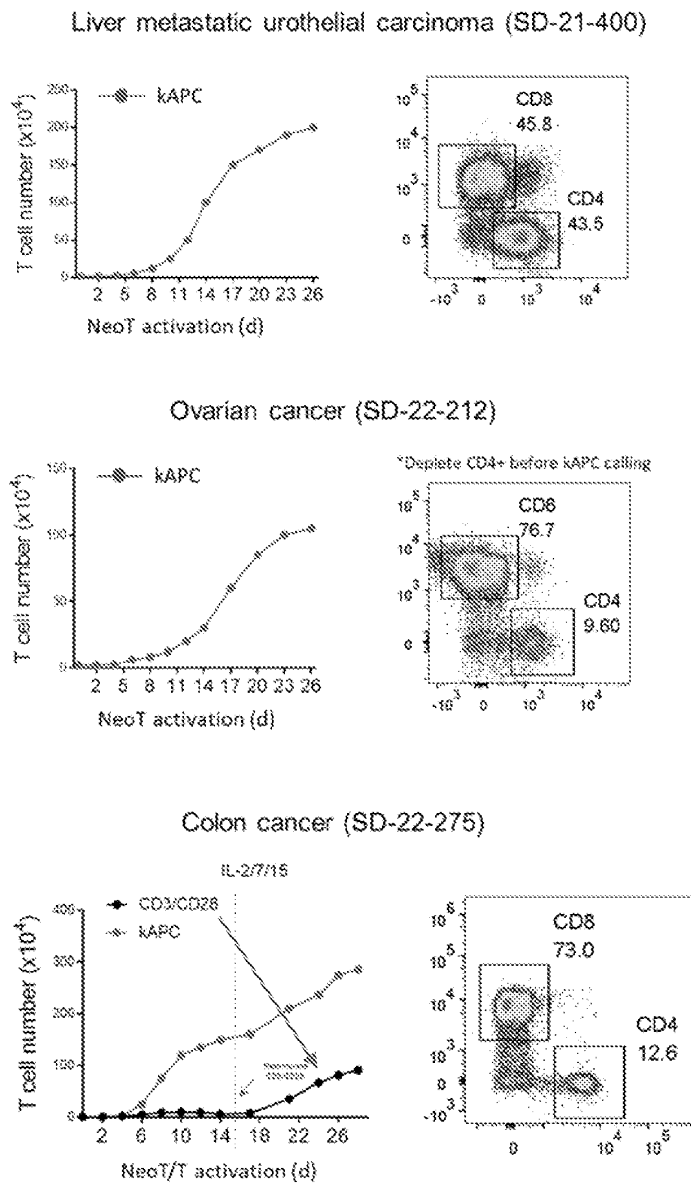


FIG. 25, cont.

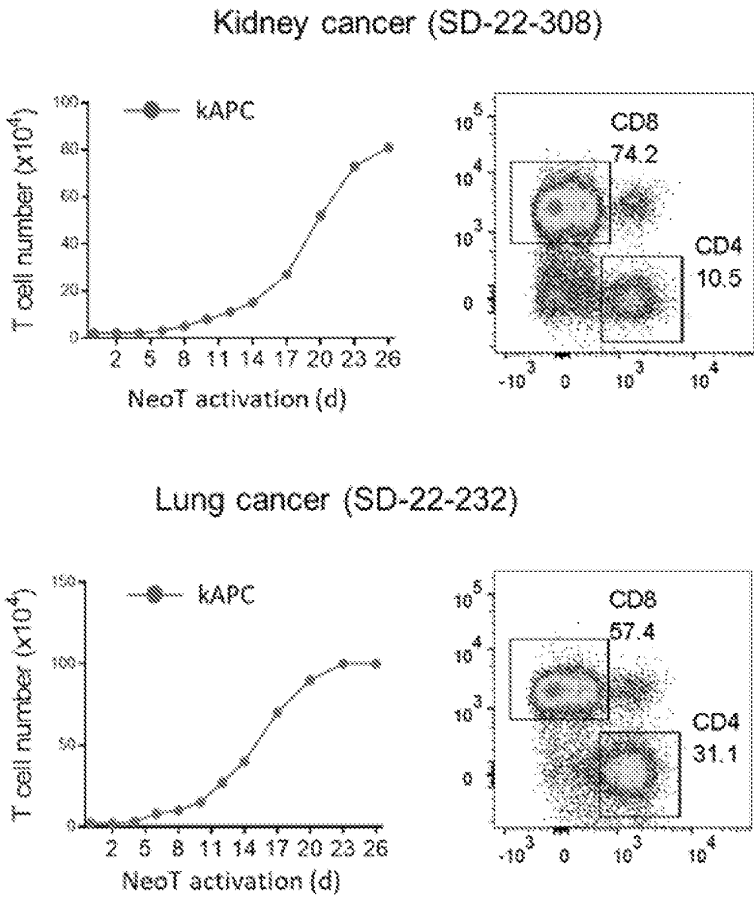
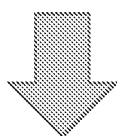
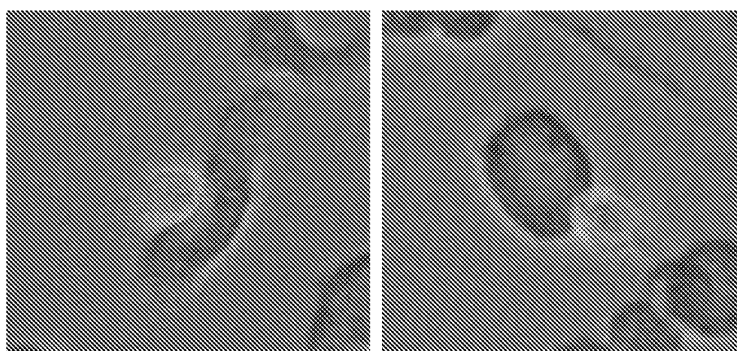


FIG. 26

NeoT (red) – kAPC (grey) engaging



NeoT (red)
clonal expansion 3d later

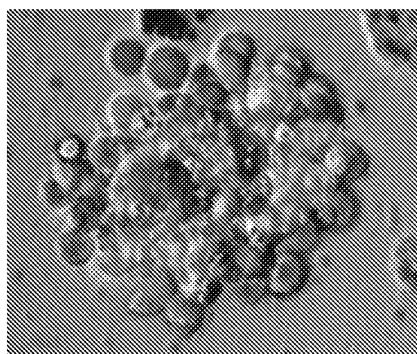


FIG. 27A

Producing kAPC from a patient with malignant Uterine Leiomyosarcoma

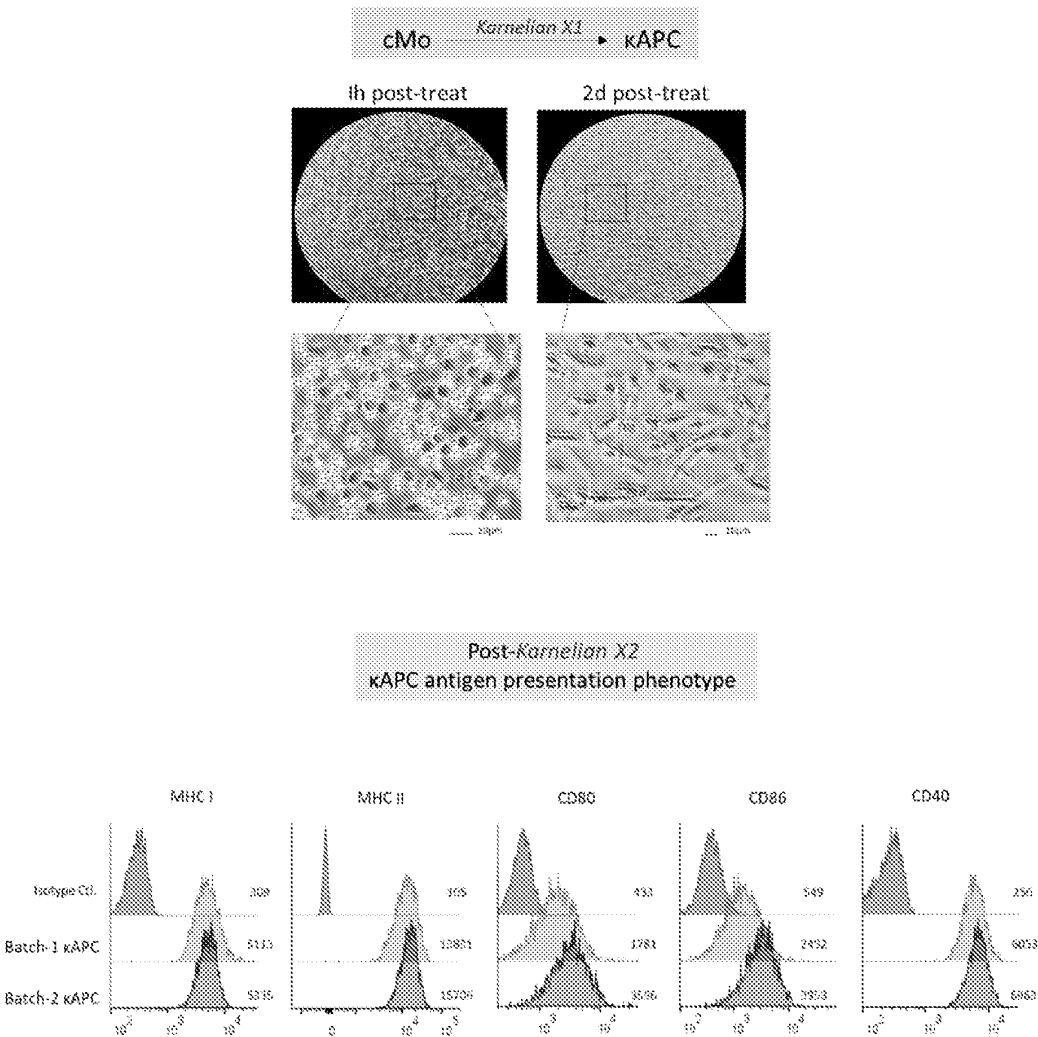


FIG. 27B In vitro production of Neo-T to treat metastatic Uterine Leiomyosarcoma

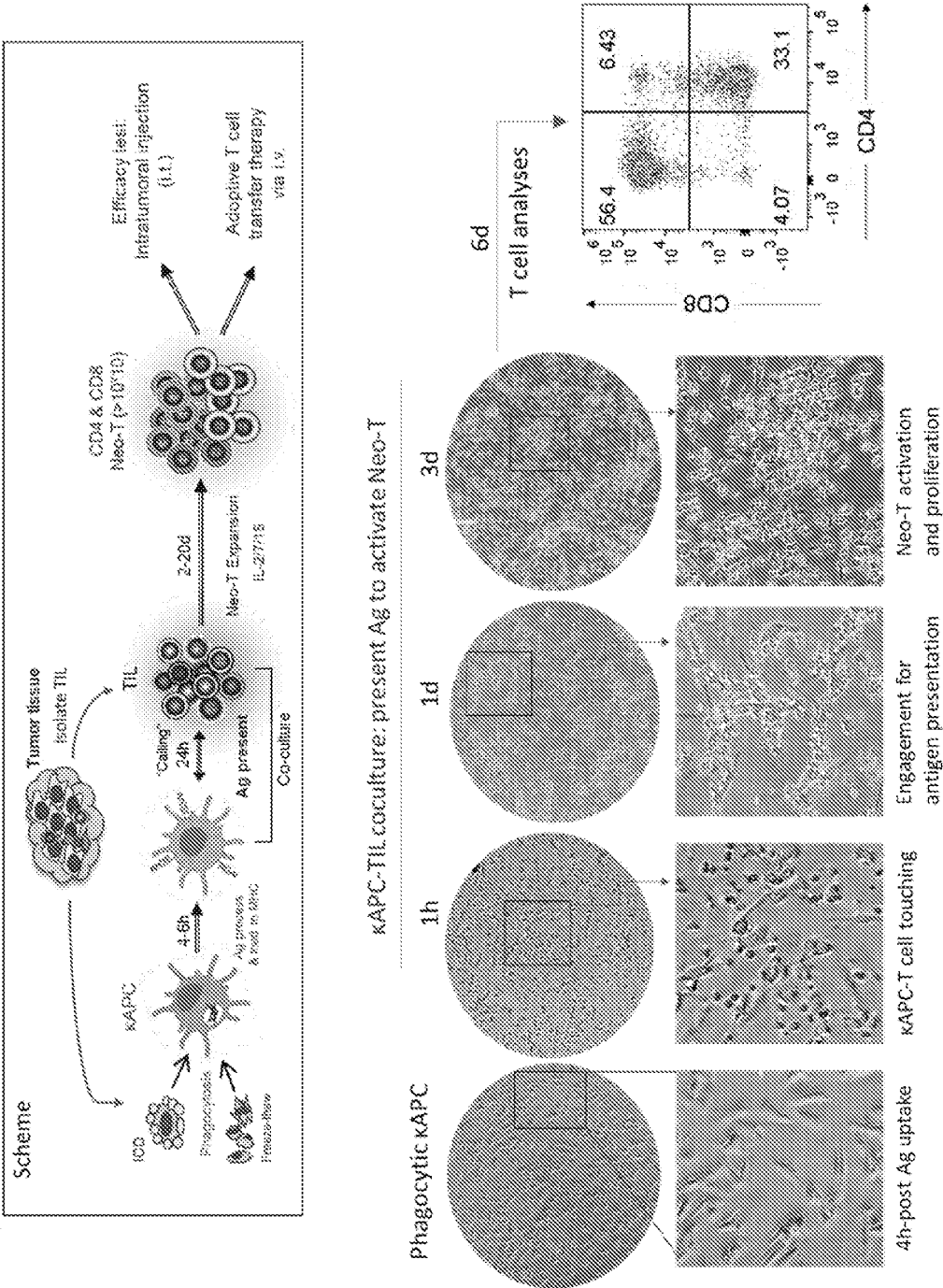


FIG. 27C

C Neo-T Efficacy by i.t.

1d prior to i.t.



4 weeks later

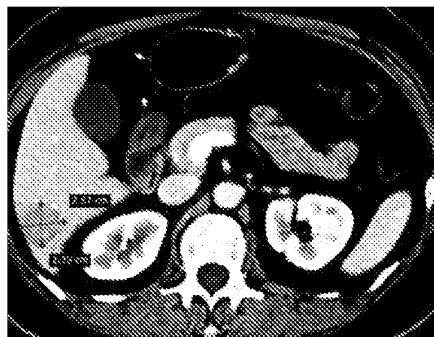


FIG. 28A

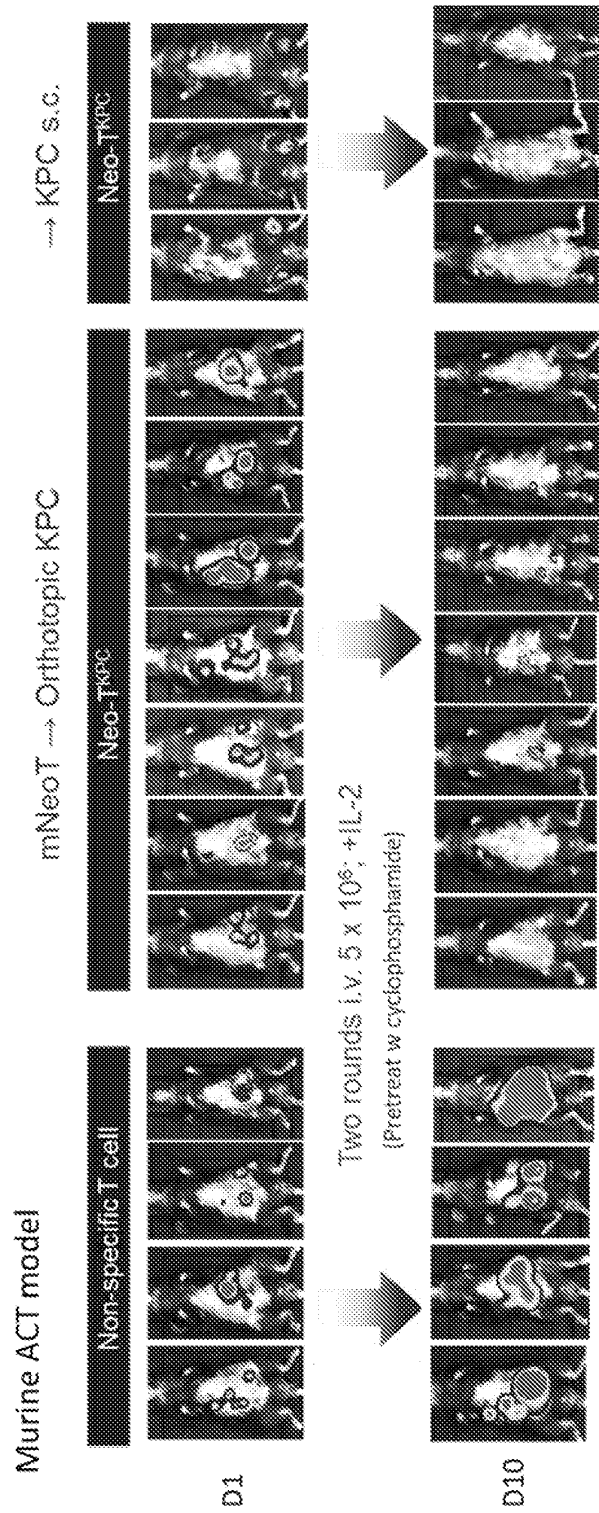


FIG. 28B

