
Acknowledgements

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Introduction

To provide a comprehensive background for the following chapters that focus on the interaction of human mesenchymal stromal cells (hMSCs) with multiple myeloma (MM) cells, this

Aims

This project defines these aims:

- Characterize the interaction between myeloma cells and mesenchymal stromal cells
- Aim 2
- Aim 3

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Appendices

A Chapter 1 Supplementary

A.1 Figures & Tables

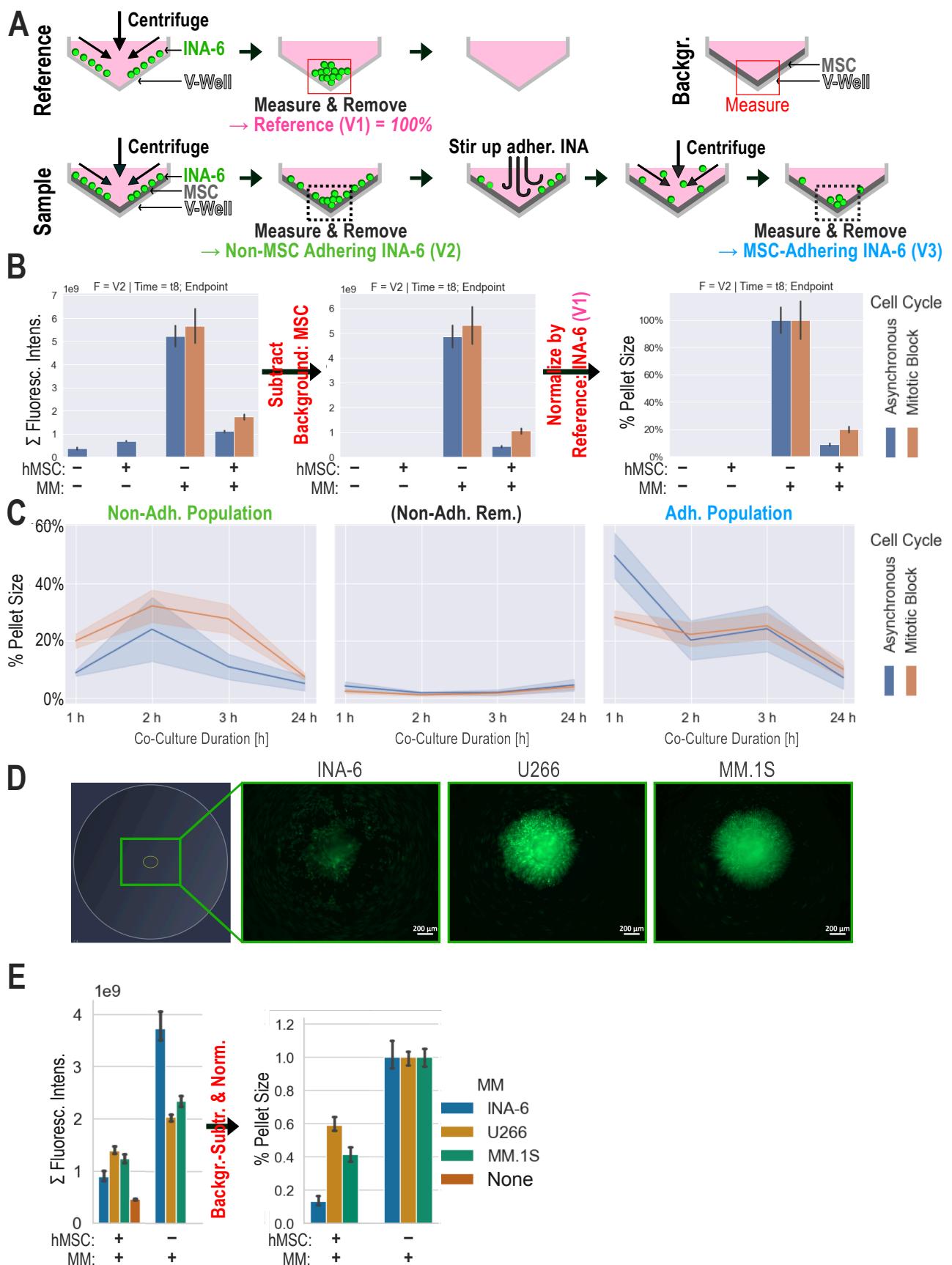
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Cell Type	Donor / Line	Donor Ages	Donor Sex	Date of negative Mycoplasma test	Experiment(s)	Figures
Myeloma Cell Line	INA-6	80	m	09.02.22	All	All
	U266			10.10.22	- Validation of V-Well Adhesion Assay	S1E
	MM1.S			24.02.22		
hMSC	1639	49	m	not tested	- Validation of V-Well Adhesion Assay	S1E
	1571	72	m		- Time-lapse: INA-6 on dispersed hMSC	1D; 2[A-E]
	1573	47	m	not tested	- Saturation of hMSCs	1[A-B]
	1578	82	m	not tested		
	1842	63	m	not tested	- INA-6 Viability dependent on time and hMSC adhesion surface (INA not washed off)	1E right
	1843	60	m			
	1537	77	f	not tested		
	1794	82	m	not tested	- INA-6 Viability dependent on time and hMSC adhesion surface (INA washed off)	1[C, E left]
	1779	61	m			
	1849	69	m	not tested	- Time-lapse: INA-6 on dispersed hMSC	1D; 2[A-E]
	1854	80	f	not tested		
	1605	71	f	not tested	- Time-lapse: INA-6 on confluent hMSC	2[G-I]
	1650	57	m			
	1859	64	f	not tested	- Cell Cycle Profiling after V-well assay	3C
	1863	79	f			
	1861	52	f	not tested		
	1818	81	f	not tested	(Donor measured twice, different passages) - V-well adhesion assay of mitotically blocked INA-6 followed by Cell Cycle Profiling after V-well assay	3[B,C]
	1824	82	f	not tested		

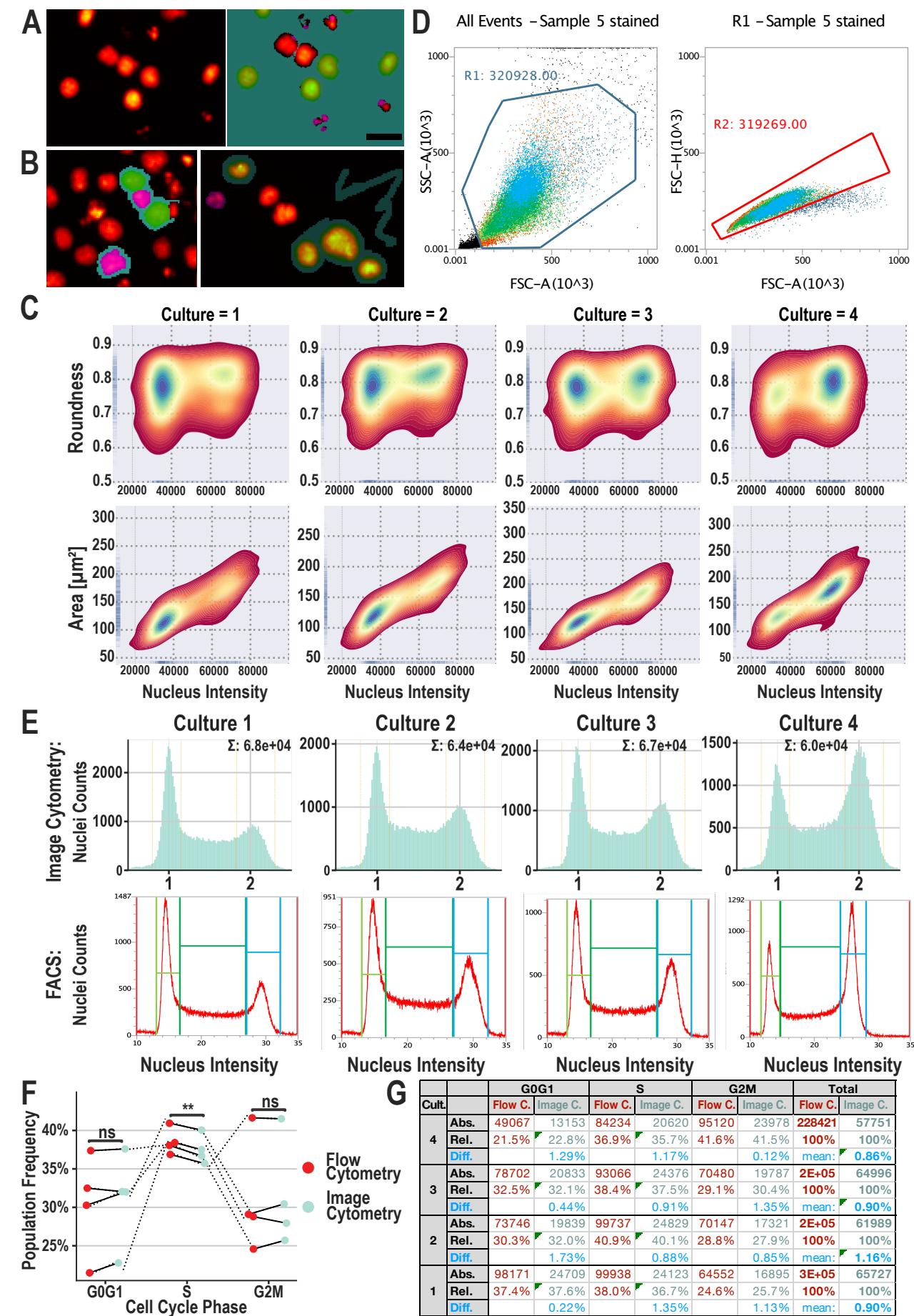
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Appendix A Table 1 – *Continued from previous page*

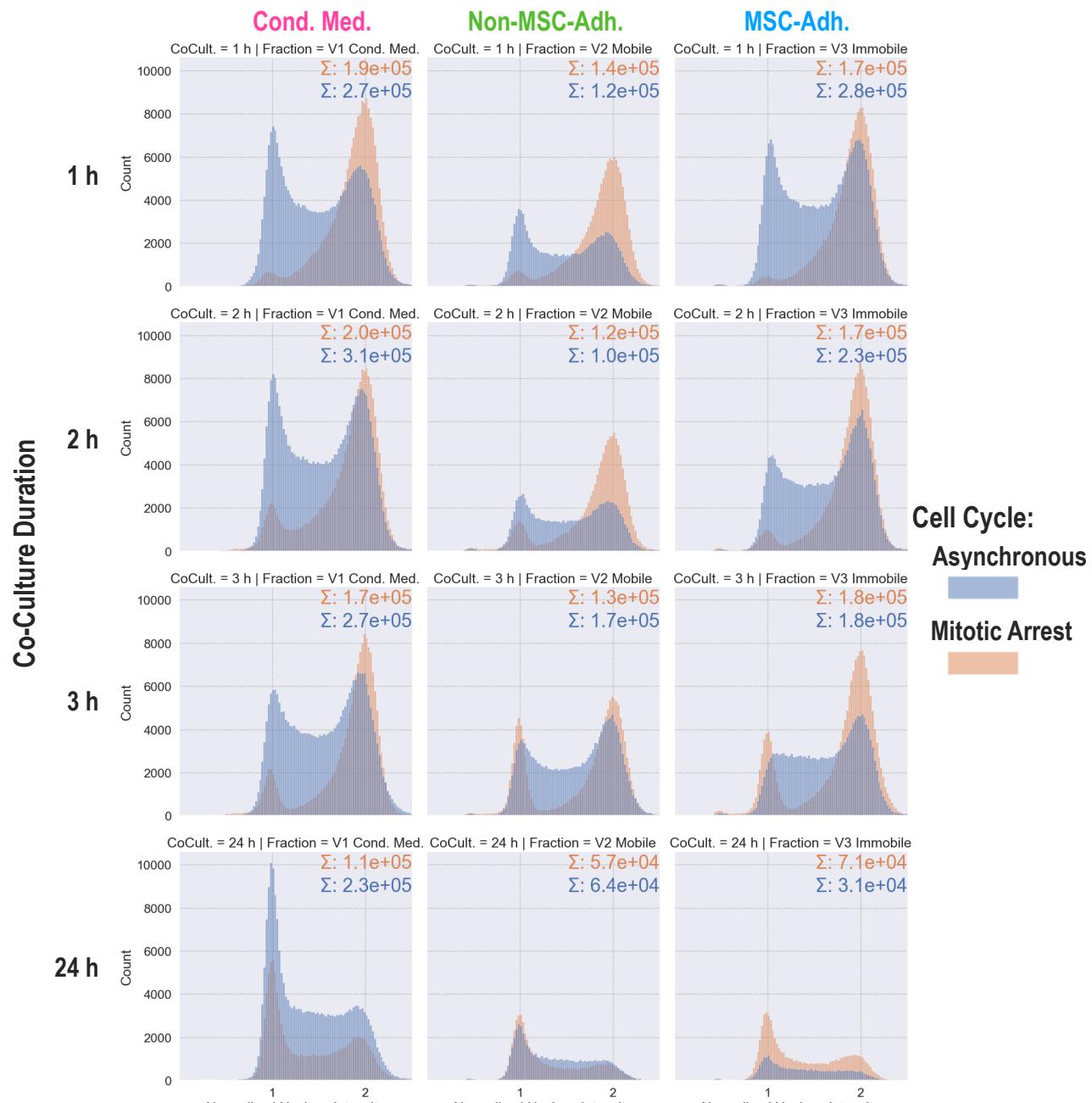
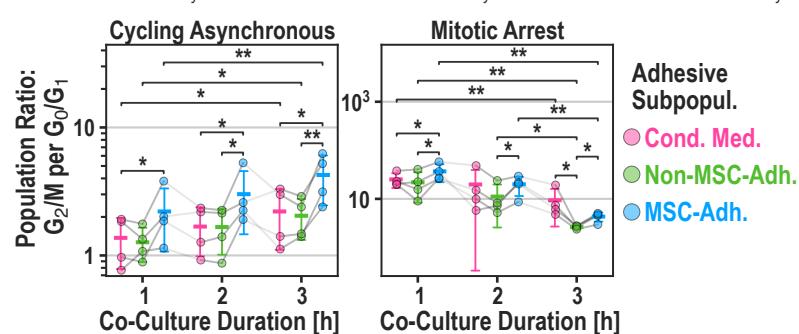
Cell Type	Donor / Line	Donor Ages	Donor Sex	Date of negative Mycoplasma test	Experiment(s)	Figures
	1827	56	m	not tested	- V-well adhesion assay of mitotically blocked INA-6 followed by Cell Cycle Profiling after V-well assay	3[B,C]
	1501	59	m	not tested	- INA-6 AI-assisted count during WPSC (INA-6 stained with celltracker green)	4B
	1643	75	f	not tested		
	1718	67	m	not tested		
	1720	58	m	not tested		
	1653	65	m	not tested		
	1591	78	m	not tested	- WPSC (MACS) followed by RNAseq, Metascape analysis, and qPCR validation - WPSC (Wash) followed by qPCR-Validation and Luminescent Viability assays	4[A,C,D,E]; 5[A-C] 4[C-E], 4F
	1654	74	m	not tested	- WPSC (MACS) followed by RNAseq, Metascape analysis, and qPCR validation - WPSC (Wash) followed by qPCR-Validation and Luminescent Viability assays	4[A,C,D,E]; 5[A-C] 4[C-E], 4F
	1655	78	f	not tested	- WPSC (MACS) followed by RNAseq, Metascape analysis, and qPCR validation	4[A,C,D,E]; 5[A-C]
	1668	80	f	not tested		
	1670	66	f	not tested		
	1701	81	m	not tested	- WPSC (Wash) followed by qPCR-Validation and Luminescent Viability assays	4[C-E], 4F
	1702	79	f	not tested		
	1600	77	m	not tested		
	1681	56	m	not tested	- WPSC (Wash) followed by Luminescent Viability assays	4F
	1672	65	m	not tested	- WPSC (Wash) followed by qPCR-Validation	4[C-E]



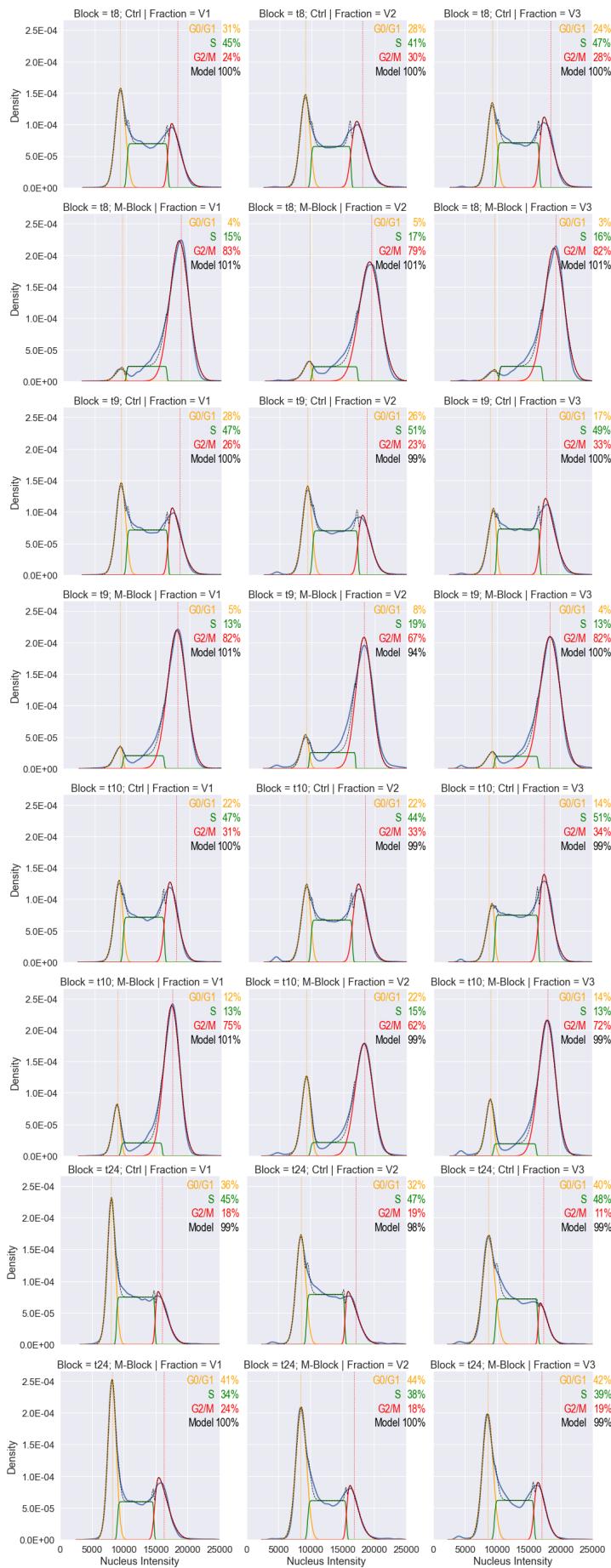
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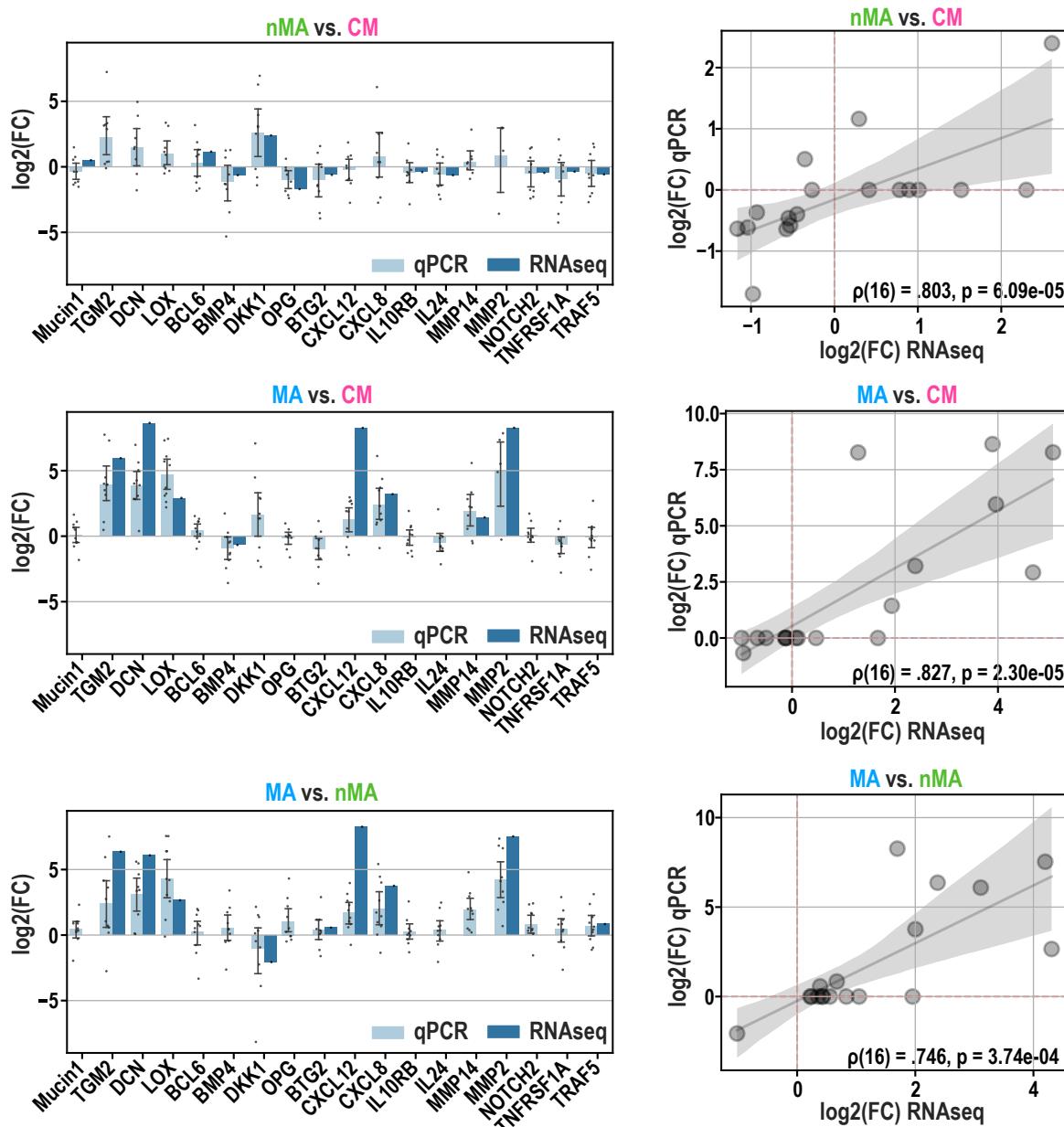
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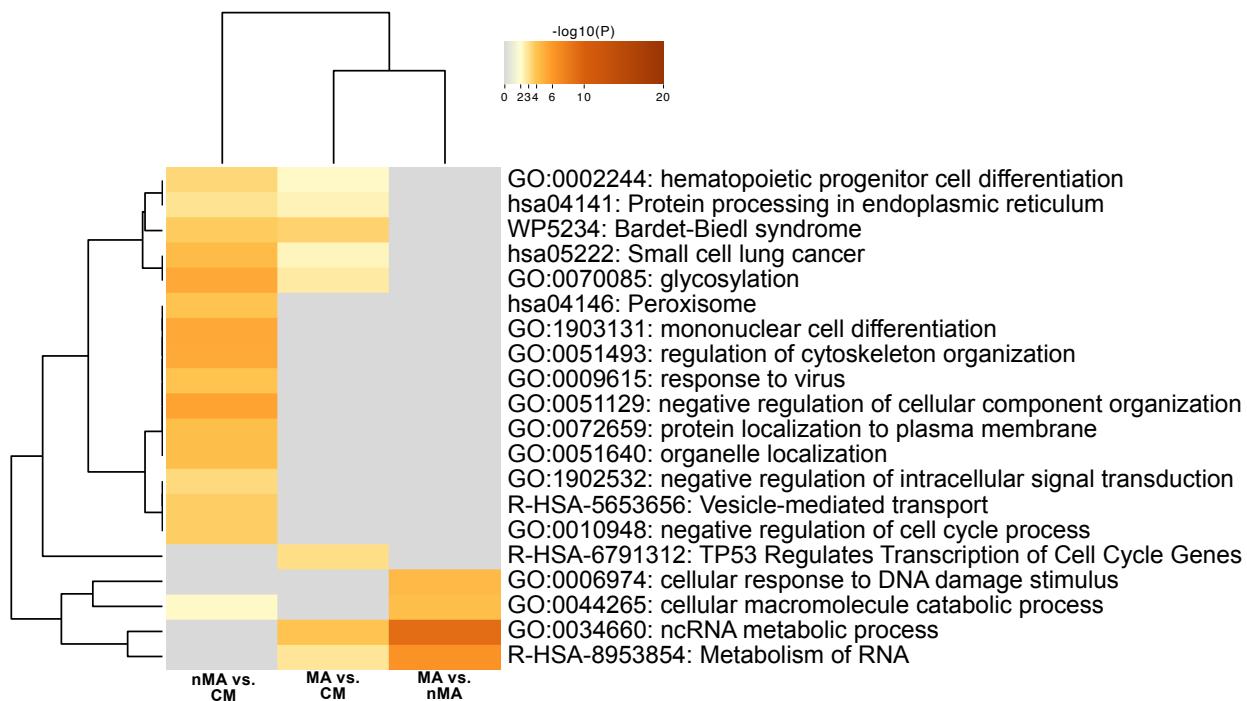
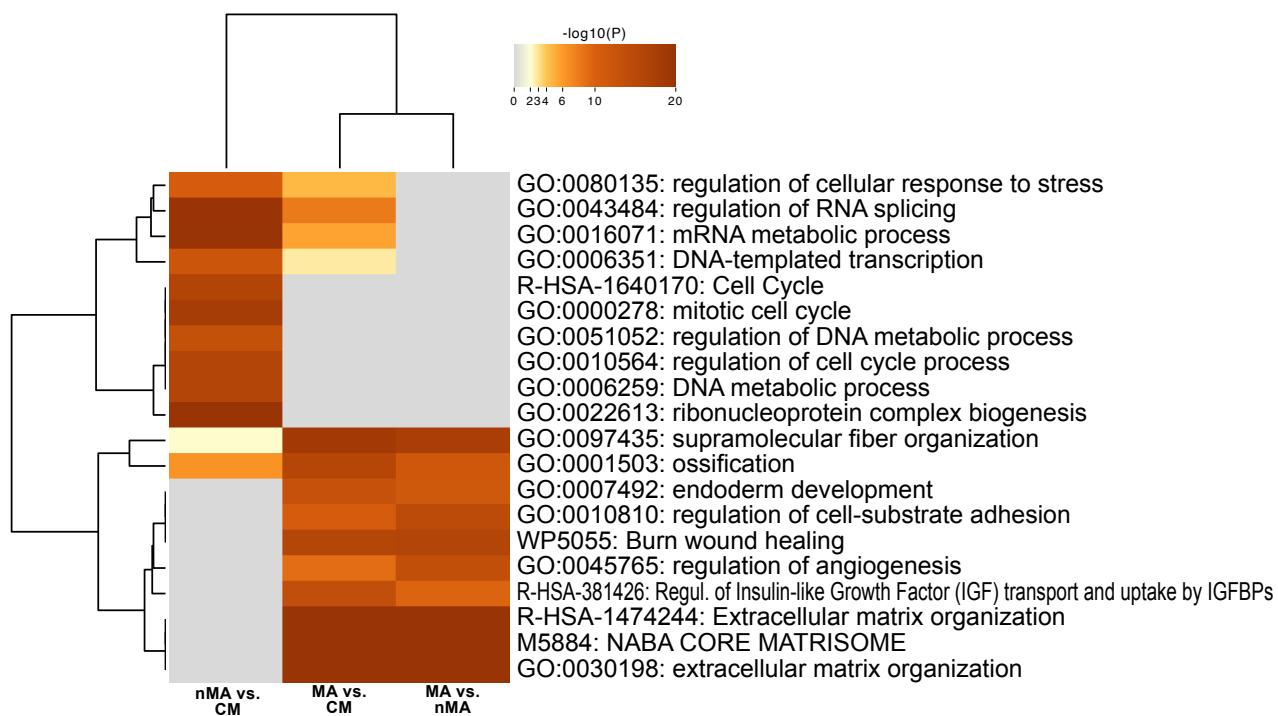
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Regulation during disease progression	Gene	Ensemble ID	Progression Free / Overall Survival	Better Prognosis with high/low expression	Association of expression with survival	
					[p-unc]	[p-adj]
Not downregulated or overall low expression	CCDC80	ENSG00000091986	Prog. Free	high	2.04E-03	1.58E-02
	CCN2	ENSG00000118523	Overall	high	2.89E-03	2.43E-02
	CCNE2	ENSG00000118523	Prog. Free	low	1.21E-02	4.62E-02
			Overall	low	5.34E-04	8.64E-03
	COL4A1	ENSG00000187498	Overall	high	9.47E-03	3.99E-02
	COL4A2	ENSG00000134871	Prog. Free	high	1.24E-02	4.62E-02
	F3	ENSG00000117525	Overall	high	9.18E-03	3.99E-02
	HTRA1	ENSG00000166033	Prog. Free	high	1.20E-02	4.62E-02
	IGFBP7	ENSG00000163453	Prog. Free	low	9.53E-03	4.38E-02
	MMP2	ENSG00000087245	Prog. Free	high	2.29E-05	2.32E-03
Continuously downregulated (PC > MGUS > sMM > MM > MMR)	OSMR	ENSG00000145623	Prog. Free	high	5.67E-04	7.15E-03
			Overall	high	1.29E-02	4.64E-02
	SERPINH1	ENSG00000149257	Prog. Free	low	1.83E-03	1.58E-02
			Overall	low	4.40E-03	2.61E-02
	ACTN1	ENSG00000072110	Overall	high	7.73E-03	3.55E-02
	AEBP1	ENSG00000106624	Prog. Free	high	1.08E-02	4.62E-02
	AXL	ENSG00000118523	Prog. Free	high	1.50E-03	1.51E-02
			Overall	high	3.64E-05	1.84E-03
	COL1A1	ENSG00000108821	Prog. Free	high	3.03E-04	4.37E-03
			Overall	high	5.93E-04	8.64E-03
	COL3A1	ENSG00000168542	Overall	high	1.08E-02	4.29E-02
	COL6A1	ENSG00000142156	Prog. Free	high	1.20E-02	4.62E-02
			Overall	high	1.10E-02	4.29E-02
	CXCL12	ENSG00000107562	Prog. Free	high	1.16E-04	2.93E-03
			Overall	high	6.48E-04	8.64E-03
	CYP1B1	ENSG00000138061	Prog. Free	high	8.64E-03	4.17E-02
			Overall	high	6.84E-04	8.64E-03

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Appendix A Table 2 – *Continued from previous page*

Regulation during disease progression	Gene	Ensemble ID	Progression Free / Overall Survival	Better Prognosis with high/low expression	Association of expression with survival	
					[p-unc]	[p-adj]
DCN		ENSG00000011465	Prog. Free	high	4.83E-03	3.05E-02
			Overall	high	2.47E-04	8.33E-03
FBLN1		ENSG00000077942	Prog. Free	high	2.68E-03	1.93E-02
			Overall	high	3.73E-03	2.61E-02
GNB3		ENSG00000111664	Prog. Free	high	3.75E-03	2.52E-02
			Overall	high	5.73E-03	3.05E-02
IGFBP4		ENSG00000141753	Prog. Free	high	8.68E-03	4.17E-02
			Overall	high	7.09E-03	3.41E-02
ITGAX		ENSG00000140678	Prog. Free	high	6.72E-03	3.60E-02
			Overall	high	3.12E-03	2.43E-02
LAMB2		ENSG00000172037	Overall	high	1.35E-03	1.39E-02
LRP1		ENSG00000123384	Prog. Free	high	6.46E-03	3.60E-02
			Overall	high	4.34E-04	8.64E-03
LTBP2		ENSG00000119681	Prog. Free	high	9.03E-05	2.93E-03
			Overall	high	1.17E-02	4.36E-02
MAP3K8		ENSG00000107968	Prog. Free	high	9.58E-04	1.08E-02
MFAP5		ENSG00000197614	Prog. Free	high	2.43E-04	4.09E-03
			Overall	high	4.27E-03	2.61E-02
MMP14		ENSG00000157227	Prog. Free	high	6.93E-05	2.93E-03
			Overall	high	6.69E-03	3.38E-02
MYL9		ENSG00000101335	Prog. Free	high	1.46E-04	2.95E-03
			Overall	high	1.56E-05	1.57E-03
NRP1		ENSG00000099250	Prog. Free	high	1.89E-03	1.58E-02
			Overall	high	2.21E-03	2.03E-02
TGFBI		ENSG00000120708	Overall	high	4.30E-03	2.61E-02
TNC		ENSG00000041982	Prog. Free	high	1.28E-02	4.62E-02
			Overall	high	4.75E-03	2.67E-02
TPM1		ENSG00000140416	Overall	high	1.37E-03	1.39E-02
TUBA1A		ENSG00000167552	Prog. Free	low	6.78E-03	3.60E-02

A.2 Materials & Methods

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V-Well is described in Appendix A: Figure 1

V-Well is described in Appendix A: Figure 1, 2

Full analysis is shown in Appendix B.3