

Supplemental Tables and Figure

Comparative Decellularization and Recellularization of Wild Type and Alpha 1,3 Galactosyltransferase Knockout Pig Lungs: A Model for *Ex Vivo* Xenogeneic Lung Bioengineering and Transplantation

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Supplemental Table 1: Details of Decellularization Protocol

	solution		amount (Liters)		
			via trachea	via pulmonary artery	total
Day one	DI water 5x PS	washing	3x 2-3	3x 2-3	12-18
	0.1 % Triton	washing	2-3	2-3	4-6
	0.1 % Triton	filling	2-3	2-3	4-6
Day two	DI water 5x PS	washing	3x 2-3	3x 2-3	12-18
	2% SDC	washing	2-3	2-3	4-6
	2% SDC	filling	2-3	2-3	4-6
Day three	DI water 1x PS	washing	3x 2-3	3x 2-3	12-18
	1M NaCl	washing	2-3	2-3	4-6
	1M NaCl	filling	2-3	2-3	4-6
	DI water 1x PS	washing	3x 2-3	3x 2-3	12-18
	DNase	washing	2-3	2-3	4-6
	DNase	filling	2-3	2-3	4-6
	DI water 1x PS	washing	3x 2-3	3x 2-3	12-18
	Peracetic acid	washing	2-3	2-3	4-6
	Peracetic acid	filling	2-3	2-3	4-6
	DI water 1x PS	washing	3x 2-3	3x 2-3	12-18
	Storage solution	washing	2x 2-3	2x 2-3	8-12
	Storage solution	filling	2-3	2-3	4-6

PS: penicillin-streptomycin

Supplementary Table 2. Spearman rank correlation coefficients comparing mass spectrometry proteomic peptide hits of positively identified proteins in individual samples from decellularized α -gal KO (α Gal) and wild type (WT) pig lungs

Variable	aGal_1	aGal_2	aGal_3	aGal_4	aGal_5	aGal_6	aGal_7	aGal_8	aGal_9	aGal_10	WT_1	WT_2	WT_3	WT_4	WT_5	WT_6
aGal_1																
aGal_2	0.85															
aGal_3	0.82	0.80														
aGal_4	0.73	0.77	0.74													
aGal_5	0.81	0.84	0.81	0.75												
aGal_6	0.76	0.77	0.82	0.75	0.79											
aGal_7	0.63	0.73	0.68	0.66	0.66	0.59										
aGal_8	0.67	0.74	0.76	0.63	0.67	0.67	0.86									
aGal_9	0.66	0.74	0.68	0.65	0.68	0.64	0.75	0.75								
aGal_10	0.72	0.81	0.73	0.65	0.70	0.67	0.77	0.79	0.91							
WT_1	0.55	0.60	0.54	0.56	0.52	0.45	0.74	0.71	0.78	0.76						
WT_2	0.44	0.44	0.38	0.54	0.42	0.39	0.49	0.48	0.65	0.60	0.74					
WT_3	0.52	0.55	0.54	0.58	0.51	0.50	0.69	0.67	0.76	0.77	0.85	0.78				
WT_4	0.54	0.55	0.56	0.60	0.51	0.49	0.72	0.69	0.77	0.74	0.86	0.76	0.89			
WT_5	0.48	0.52	0.51	0.56	0.46	0.48	0.65	0.58	0.69	0.68	0.83	0.70	0.85	0.85		
WT_6	0.56	0.61	0.66	0.51	0.54	0.54	0.72	0.74	0.66	0.63	0.61	0.30	0.58	0.64	0.62	

Supplementary Table 3. Spearman rank p-values comparing mass spectrometry proteomic peptide hits of positively identified proteins in individual samples from decellularized α -gal KO (α Gal) and wild type (WT) pig lungs

Variable	aGal_1	aGal_2	aGal_3	aGal_4	aGal_5	aGal_6	aGal_7	aGal_8	aGal_9	aGal_10	WT_1	WT_2	WT_3	WT_4	WT_5	WT_6
aGal_1																
aGal_2	< 0.0001															
aGal_3	< 0.0001	< 0.0001														
aGal_4	< 0.0001	< 0.0001	< 0.0001													
aGal_5	< 0.0001	< 0.0001	< 0.0001	< 0.0001												
aGal_6	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001											
aGal_7	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001										
aGal_8	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001									
aGal_9	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001								
aGal_10	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001							
WT_1	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001						
WT_2	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001					
WT_3	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001				
WT_4	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001			
WT_5	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001		
WT_6	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0011	< 0.0001	< 0.0001	< 0.0001	

Supplemental Table 4 – Total spectral counts for positively identified proteins in acellular α -gal KO and wildtype (WT) lungs

Gene Name	Accession No.	Alpha-gal KO										WT (by Sample)											
		1	2	3	4	5	6	7	8	9	10	1A	1B	2A	2B	3A	3B	4A	4B	5A	5B	6A	6B
Cytoplasmic																							
CBR2	CBR2_PIG	10	6	4	3	9	8	11	19	4	13	11	14	39	40	18	15	18	23	20	19	5	14
DPYSL2	I3LJE2_PIG	8	7	7	4	3	3	3	5	4	2	0	3	4	3	0	0	0	6	0	0	0	0
EEF1A	Q0PY11_PIG	0	2	0	4	2	1	2	0	4	0	5	4	9	9	0	0	4	3	5	0	7	0
EEF2	I3LII3_PIG	6	6	7	4	7	6	2	3	0	1	0	0	7	4	0	0	0	0	0	0	0	0
HSPB1	HSPB1_PIG	0	2	3	8	5	1	8	0	4	3	5	7	9	6	4	0	4	6	7	4	0	0
HSPG2	F1SU03_PIG	3	3	2	4	1	0	4	0	3	1	0	0	0	0	0	0	5	0	6	5	4	
Ssc.41914	F1STM4_PIG	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cytoskeletal																							
ACTA2	C7AI81_PIG	8	10	9	11	14	12	15	17	20	20	20	30	38	30	25	27	22	20	26	19	22	7
ACTB	ACTB_PIG	17	13	12	16	13	10	19	18	22	22	34	44	52	43	35	39	35	30	29	24	16	15
ACTC1	B6VNT8_PIG	8	11	10	12	14	12	16	19	21	23	22	30	38	31	25	27	22	20	26	19	22	7
CCT6A	F1RIU3_PIG	4	8	3	7	6	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DES	DESM_PIG	6	8	6	7	11	8	7	4	17	13	6	3	10	10	5	0	3	0	5	0	4	0
EZR	F1SB42_PIG	3	0	0	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FLNC	F1SMN5_PIG	4	3	0	3	4	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0
HBA	HBA_PIG	4	4	6	4	4	3	5	9	17	11	28	29	26	22	23	22	28	26	40	43	11	20
	I3LJ44_PIG	8	8	8	4	8	6	11	10	14	15	10	12	9	10	14	15	12	14	11	13	5	11
KRT19	F1S0J8_PIG	1	0	0	1	2	0	2	4	5	0	0	0	4	0	0	0	0	0	0	0	7	4
LOC100511457_1	I3LV99_PIG	2	5	0	3	3	3	1	0	5	4	0	0	0	0	0	0	0	0	0	0	0	0
LOC100511457_2	I3LIE3_PIG	2	5	3	4	4	4	1	0	5	4	0	0	0	0	0	0	0	0	0	0	0	0
LOC100517284	F1RI39_PIG	3	3	3	3	2	0	0	0	2	0	4	0	5	4	0	0	0	0	0	0	5	2
LOC100620928	F1S6M7_PIG	16	10	11	8	11	16	7	11	15	15	15	19	20	16	11	10	22	17	13	11	13	10
LOC100621514	I3LDR2_PIG	4	8	6	9	5	9	7	8	5	4	5	4	0	0	0	6	0	9	4	13	9	
LOC100621981	I3L5B3_PIG	26	29	27	27	26	29	35	31	37	35	22	19	16	16	25	31	26	26	15	17	11	28
MACF1	F1SV22_PIG	3	4	3	2	6	0	4	3	0	2	0	3	0	0	0	4	5	0	0	0	0	6

MSN	F1RTN3_PIG	4	2	0	2	2	0	3	0	0	2	0	6	0	4	0	0	0	0	0	0	0	
MYH10	F1SSA6_PIG	34	36	34	34	34	45	38	37	38	37	24	21	16	16	27	34	29	28	15	17	18	32
MYH11_1	F1SK10_PIG	12	6	15	13	10	12	8	8	7	10	10	11	0	0	5	5	6	6	0	6	18	5
MYH11_2	MYH11_PIG	4	3	7	3	5	4	2	5	0	0	0	0	0	0	0	0	0	0	0	0	9	0
MYH9	F1SKJ1_PIG	45	46	34	48	44	53	50	34	58	75	61	59	77	75	85	104	88	87	99	110	53	49
MYL6	MYL6_PIG	3	2	3	3	1	2	0	3	5	5	13	12	8	7	5	0	4	3	4	4	0	0
MYO1C	I3LIL4_PIG	6	6	8	8	9	8	7	9	4	4	9	4	3	4	4	3	7	8	9	6	0	2
NUMA1	F1SUX4_PIG	1	0	0	0	2	1	4	2	4	2	0	0	0	0	0	0	0	0	0	0	0	2
TLN1	F1SFZ8_PIG	6	6	5	9	9	2	20	12	5	5	15	14	18	25	16	19	18	20	16	17	0	9
TPM3	Q6QA25_PIG	1	4	0	0	0	0	4	3	0	2	3	0	0	0	0	0	0	0	0	0	0	0
TUBA1B	F2Z5T5_PIG	19	17	20	18	18	29	11	12	8	5	13	17	9	10	9	9	15	12	16	17	18	11
TUBA4A	F2Z5S8_PIG	8	11	10	12	7	12	11	12	5	4	8	7	5	6	5	5	12	5	11	4	13	12
TUBB	TBB5_PIG	23	21	24	21	21	27	18	22	25	28	28	32	33	40	23	20	38	31	29	26	15	15
TUBB1	A5GFX6_PIG	4	4	0	2	4	2	2	0	4	4	5	6	0	0	0	3	6	0	0	4	7	5
TUBB2B	F2Z5B2_PIG	19	15	17	12	14	24	14	17	20	22	18	22	20	25	11	10	28	17	15	13	13	10
TUBB4A	F2Z5K5_PIG	20	12	15	14	13	17	8	10	15	16	13	18	18	18	11	9	19	14	11	9	11	10
TUBB4B	F2Z571_PIG	21	15	18	17	16	23	15	18	22	25	19	25	26	27	14	10	31	20	16	11	13	10
TUBB6	I3LBV1_PIG	6	5	3	2	5	5	2	3	7	6	6	8	5	4	0	3	6	5	4	4	7	5
	I3LCX2_PIG	8	8	13	7	9	6	13	12	10	14	9	6	3	0	11	10	9	12	9	4	9	10
	F1RJU6_PIG	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
	I3LIQ9_PIG	4	11	4	10	4	6	10	11	7	12	6	10	10	7	16	9	12	9	16	13	9	10
VCL	VINC_PIG	0	0	0	0	0	0	3	3	0	0	4	4	7	6	0	0	4	5	0	0	0	0
VIM	VIME_PIG	11	7	9	5	11	9	2	3	22	7	11	17	21	27	4	3	7	8	9	11	4	4
Cytosolic																							
YWHAZ	F2Z558_PIG	2	0	2	1	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ECM																							
COL14A1	F1S285_PIG	4	4	3	4	4	5	2	4	2	0	0	6	3	3	0	5	0	0	0	0	4	6
COL1A1	F1RT61_PIG	0	2	2	0	2	3	0	3	4	5	0	0	5	3	5	0	0	0	0	0	0	0
COL1A2	F1SFA7_PIG	2	1	5	3	2	3	4	11	8	10	11	11	5	6	14	10	15	8	15	11	20	10
COL6A1	I3LS72_PIG	5	6	3	2	5	3	6	4	9	8	0	0	0	0	0	5	0	6	0	0	5	10

COL6A3	I3LUR7_PIG	100	85	87	75	96	83	75	92	96	84	78	86	65	73	147	136	109	103	122	121	116	116
COL6A5	F1RS99_PIG	10	7	4	4	10	7	8	19	3	4	5	4	0	0	0	0	0	0	0	0	0	7
EMILIN1	F1SDQ5_PIG	2	2	3	0	3	0	0	4	0	0	0	0	0	3	4	0	4	3	4	4	5	2
FBN1_1	FBN1_PIG	8	18	32	15	18	18	13	25	5	8	3	0	0	0	0	4	5	0	0	60	56	
FBN1_2	F1SN67_PIG	8	15	28	14	16	18	11	22	4	7	0	0	0	0	0	3	3	0	0	56	48	
FN1	F1SS24_PIG	15	14	10	8	7	2	17	5	12	17	19	15	9	9	7	10	10	16	15	13	20	16
I3LAA4	I3LAA4_PIG	3	0	2	1	2	3	7	8	4	0	0	4	0	0	0	6	6	0	0	5	11	
I3LQ84	I3LQ84_PIG	15	15	20	23	17	21	16	19	18	20	17	18	14	15	30	31	12	11	9	11	33	16
LAMA4	F1RZM4_PIG	2	2	3	0	2	2	1	2	0	3	0	0	0	0	0	0	0	4	0	0	0	
LAMB1	F1SAE9_PIG	3	2	3	2	3	3	3	0	0	0	0	0	0	0	0	0	0	4	0	13	11	
LAMB2	F1SPT5_PIG	3	6	13	10	7	11	7	8	10	11	5	7	0	3	12	14	3	12	7	11	16	14
LAMC1	F1S663_PIG	9	7	13	9	10	12	6	8	7	5	0	0	3	0	4	7	7	9	5	4	16	25
LOC100739576	I3L9T6_PIG	3	2	8	4	4	3	2	4	3	2	0	0	0	0	0	0	0	0	0	0	9	
POSTN	I3LDM1_PIG	3	6	7	6	5	4	7	8	2	4	4	7	0	0	7	5	0	0	4	0	9	7
TGFBI_1	BGH3_PIG	24	20	13	10	19	20	17	11	8	9	4	8	3	6	14	7	7	0	11	11	0	6
TGFBI_2	F1RHA7_PIG	11	11	7	4	9	11	12	5	4	5	5	10	4	7	12	5	4	0	0	4	0	6
TGM2	F1SDX6_PIG	8	15	9	13	12	13	18	12	16	19	24	24	20	21	23	14	19	17	13	22	9	6
TNC_2	F1SMI5_PIG	4	5	3	2	5	3	0	0	3	4	0	0	0	0	0	0	0	0	0	0	0	0
TNC_1	TENA_PIG	8	7	3	2	7	5	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	6
Membrane																							
ANXA1	F1SJB5_PIG	5	3	3	2	6	0	0	0	2	2	4	4	4	3	0	0	4	0	0	0	0	0
ANXA2	ANXA2_PIG	3	6	1	10	6	0	4	8	4	2	4	3	10	9	0	0	0	0	0	0	4	0
ATP5A1	ATPA_PIG	0	1	2	7	5	6	3	3	2	0	0	0	0	3	0	0	0	0	0	0	0	0
ATP5B	F1SLA0_PIG	5	7	2	7	3	9	4	4	3	8	0	0	8	9	0	0	0	0	0	0	0	0
CLTC	F6PV15_PIG	5	6	4	7	4	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EHD2	I3LD72_PIG	8	4	4	6	8	2	2	3	3	4	4	4	4	3	0	0	0	0	0	9	0	0
ENPP6	ENPP6_PIG	3	3	2	0	2	2	0	5	0	3	0	0	0	0	0	0	0	0	0	0	0	0
IQGAP1_1	I3LDA8_PIG	3	0	4	4	0	3	4	4	0	0	3	0	5	0	0	3	3	3	0	0	0	0
IQGAP1_2	F1RMJ4_PIG	0	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LOC100049693	F1RR78_PIG	7	8	3	6	13	5	7	7	8	4	15	8	12	13	7	7	6	9	5	19	0	0

PLG	F1SB81_PIG	0	4	0	0	2	0	4	7	2	2	4	8	0	0	0	0	5	0	0	0	4	
VDAC2	VDAC2_PIG	2	2	2	4	0	0	3	3	2	2	4	4	3	0	4	7	3	6	5	6	7	5
<u>Nuclear</u>																							
DHX9	I3LHZ6_PIG	4	3	0	4	3	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	
F1SSL5	F1SSL5_PIG	0	0	2	0	0	3	0	0	0	0	0	0	4	3	0	0	0	0	0	0	0	
H2AFV	F2Z5P1_PIG	0	0	0	3	0	0	2	0	0	0	5	0	4	4	0	3	3	5	0	0	0	
H2AFX	I3L7T6_PIG	0	0	0	3	0	0	3	0	0	0	8	0	8	7	7	7	4	6	4	4	0	
H3F3A	H33_PIG	0	3	0	0	3	0	4	4	4	3	10	4	5	6	7	7	7	8	4	6	0	
H4	H4_PIG	1	2	2	4	4	7	6	5	4	4	11	10	9	7	18	20	21	16	7	9	13	
HIST1H2BD	F2Z584_PIG	10	9	10	7	9	10	4	6	12	14	9	8	22	27	11	17	13	12	11	0	0	
HIST1H2BN	F2Z579_PIG	10	9	10	7	9	10	4	6	12	14	9	8	22	27	11	17	13	12	11	0	0	
HIST2H2AA4	F2Z5L2_PIG	0	4	0	6	3	3	4	4	5	7	13	7	23	22	16	14	15	16	11	13	0	
HIST2H2AB	F2Z5L6_PIG	0	0	0	2	2	0	0	0	0	0	4	0	4	3	5	3	3	3	0	0	0	
HNRNPK	I3LQS0_PIG	11	10	10	9	8	5	5	5	2	4	6	7	7	10	12	10	9	9	11	11	11	
HNRNPU	F1S8L9_PIG	1	0	2	1	4	3	3	0	0	0	0	0	0	0	0	0	0	4	0	0	0	
LMNA_1	LMNA_PIG	6	3	3	5	4	0	8	8	7	7	6	7	8	9	7	7	6	3	0	0	4	
LMNA_2	F1RLQ2_PIG	5	3	3	4	4	0	8	8	5	7	6	7	8	9	7	7	6	3	0	0	4	
LOC100152878	F1RTQ5_PIG	3	2	2	3	2	3	1	3	1	2	0	0	7	3	0	0	3	0	0	0	0	
LOC100155734	F2Z587_PIG	0	4	0	6	3	0	3	3	5	3	10	6	16	15	11	10	10	11	9	9	0	
LOC100157763	F1RPL3_PIG	0	0	0	6	0	3	3	4	5	7	13	7	22	22	12	10	10	11	9	9	0	
LOC100524253	F2Z5L0_PIG	10	8	10	6	10	10	4	7	12	13	0	0	18	22	9	12	12	0	0	0	0	
LOC100525821	F2Z576_PIG	0	3	0	0	3	0	3	3	4	3	9	3	5	4	11	5	7	8	4	6	9	
LOC100622412	F2Z5K9_PIG	0	3	0	0	3	0	6	3	4	3	13	4	8	6	9	5	6	9	5	9	0	
MYBBP1A	F1RGP1_PIG	0	0	2	0	0	3	0	0	0	0	0	0	0	0	0	0	6	0	9	0	2	
<u>Secreted</u>																							
C3_1	CO3_PIG	4	4	6	0	3	2	8	5	2	5	11	10	0	0	5	3	4	0	5	4	7	
C3_2	F1SBS4_PIG	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	
FGA_1	F1RX36_PIG	6	15	9	4	6	3	18	23	18	17	9	14	4	4	7	5	7	8	5	0	14	
FGA_2	I3LQR9_PIG	0	13	9	0	6	3	17	23	14	14	0	10	0	0	0	0	0	0	0	0	14	
FGB	F1RX37_PIG	14	15	12	7	9	6	19	26	22	22	19	21	0	0	5	7	7	9	4	4	13	

Supplementary Table 5. Mass spectrometry proteomic assessment of acellular alpha-gal and wild type porcine lungs by cellular location. FDR-corrected exact p-values less than 0.05 are considered statistically significant and are bolded. Shaded boxes indicates unique peptide count median was significantly higher in acellular α -gal KO porcine lungs than acellular wild type (WT) porcine lungs

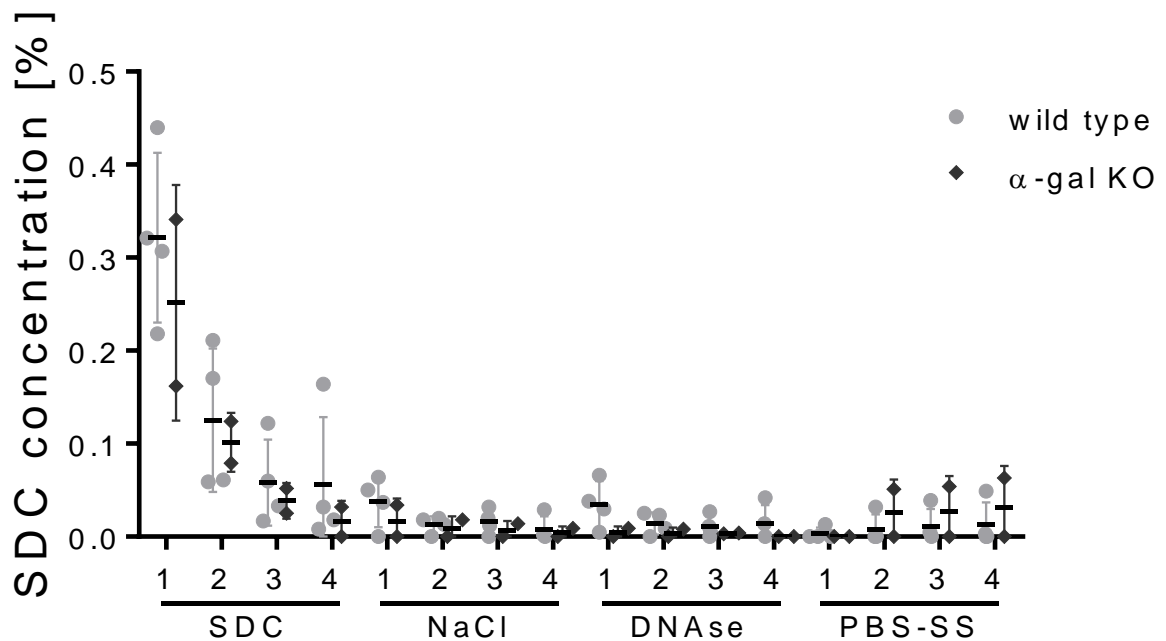
Alpha-gal vs Normal pig lung proteomic comparisons			
Gene name	Accession #	Exact p-value	FDR-corrected exact p-value
Cytoplasmic			
CBR2	CBR2	0.0047	0.030
DPYSL2	I3LJE2	0.0082	0.039
EEF2	I3LII3	0.0272	0.089
EEF1A	Q0PY11	0.0326	0.099
HSPB1	HSPB1	0.4961	0.641
HSPG2	F1SU03	0.6139	0.728
Ssc_41914	F1STM4	1.0000	1.009
Cytoskeletal			
MYH10	F1SSA6	0.0001	0.014
HBA	HBA	0.0002	0.007
ACTB	ACTB	0.0010	0.019
ACTA2	C7AI81	0.0015	0.019
MYH9	F1SKJ1	0.0019	0.020
LOC100621981	I3L5B3	0.0020	0.019
LOC100511457_2	I3LIE3	0.0020	0.018
ACTC1	B6VNT8	0.0062	0.033
LOC100511457_1	I3LV99	0.0082	0.038
TLN1	F1SFZ8	0.0204	0.071
DES	DESM	0.0282	0.090
NUMA1	F1SUX4	0.0331	0.098
MYH11_2	MYH11	0.0382	0.110
CCT6A	F1RIU3	0.0451	0.121
MYH11_1	F1SKIO	0.0478	0.125
FLNC	F1SMN5	0.0495	0.126
VCL	VINC	0.1071	0.216
TPM3	Q6QA25	0.1140	0.226

I3LIQ9	I3LIQ9	0.1154	0.221
MYL6	MYL6	0.1266	0.239
TUBB	TBB5	0.1344	0.241
MYO1C	I3LIL4	0.1356	0.240
I3LJ44	I3LJ44	0.1561	0.272
LOC100620928	F1S6M7	0.1617	0.278
LOC100621514	I3LDR2	0.1658	0.280
I3LCX2	I3LCX2	0.1883	0.314
MACF1	F1SV22	0.2265	0.372
EZR	F1SB42	0.3393	0.494
TUBA4A	F2Z5S8	0.3610	0.506
MSN	F1RTN3	0.3679	0.510
TUBA1B	F2Z5T5	0.4106	0.549
VIM	VIME	0.5995	0.718
TUBB6	I3LBV1	0.6379	0.749
TUBB1	A5GFX6	0.7365	0.856
TUBB4A	F2Z5K5	0.7474	0.859
KRT19	F1S0J8	0.7490	0.853
TUBB2B	F2Z5B2	0.7793	0.879
LOC100517284	F1RI39	0.8156	0.911
TUBB4B	F2Z571	0.8638	0.920
F1RJU6	F1RJU6	1.0000	1.018
YWHAZ	F2Z558	0.0865	0.188
<u>ECM</u>			
TGFBI_1	BGH3	0.0050	0.030
COL1A2	F1SFA7	0.0051	0.029
TNC_2	F1SMI5	0.0052	0.029
COL6A5	F1RS99	0.0062	0.031
LOC100739576	I3L9T6	0.0102	0.044
LAMA4	F1RZM4	0.0145	0.059
TNC_1	TENA	0.0175	0.069
COL6A1	I3LS72	0.0403	0.110
COL6A3	I3LUR7	0.0528	0.127
TGFBI_2	F1RHA7	0.0628	0.142
TGM2	F1SDX6	0.0912	0.194
EMILIN1	F1SDQ5	0.1324	0.246
COL14A1	F1S285	0.2276	0.369
POSTN	I3LDM1	0.2576	0.406
FN1	F1SS24	0.3209	0.486
COL1A1	F1RT61	0.3584	0.509
LAMC1	F1S663	0.4609	0.602

FBN1_2	F1SN67	0.5217	0.659
FBN1_1	FBN1	0.5456	0.682
I3LQ84	I3LQ84	0.8370	0.917
I3LAA4	I3LAA4	0.8534	0.917
LAMB1	F1SAE9	0.8934	0.934
LAMB2	F1SPT5	0.9647	0.990
<u>Membrane</u>			
VDAC2	VDAC2	0.0085	0.038
ATP5A1	ATPA	0.0192	0.071
ENPP6	ENPP6	0.0202	0.073
ATP5B	F1SLA0	0.0214	0.072
CLTC	F6PV15	0.0395	0.111
EHD2	I3LD72	0.0584	0.137
ANXA2	ANXA2	0.2798	0.435
LOC100049693	F1RR78	0.3529	0.507
IQGAP1_1	I3LDA8	0.4027	0.545
ANXA1	F1SJB5	0.4188	0.554
IQGAP1_2	F1RMJ4	0.5000	0.639
PLG	F1SB81	0.8330	0.921
<u>Nuclear</u>			
LOC100525821	F2Z576	0.0001	0.005
H4	H4	0.0001	0.007
LOC100622412	F2Z5K9	0.0004	0.009
HIST2H2AA4	F2Z5L2	0.0015	0.022
H2AFX	I3L7T6	0.0017	0.020
H3F3A	H33	0.0027	0.023
LOC100155734	F2Z587	0.0037	0.029
LOC100157763	F1RPL3	0.0045	0.030
HIST2H2AB	F2Z5L6	0.0176	0.067
DHX9	I3LHZ6	0.0507	0.124
H2AFV	F2Z5P1	0.0619	0.142
HNRNPK	I3LQS0	0.0773	0.171
HNRNPU	F1S8L9	0.1058	0.217
LOC100152878	F1RTQ5	0.1141	0.222
MYBBP1A	F1RGP1	0.2335	0.373
LOC100524253	F2Z5L0	0.3252	0.486
HIST1H2BN	F2Z579	0.5987	0.725
HIST1H2BD	F2Z584	0.5987	0.732
F1SSL5	F1SSL5	0.8393	0.911
LMNA_1	LMNA	0.8841	0.933
LMNA_2	F1RLQ2	0.8965	0.929

<u>Secreted</u>			
HBB_1	F1RII7	0.0011	0.018
HBB_2	HBB	0.0044	0.031
FGA_2	I3LQR9	0.0303	0.094
VWF	VWF	0.0495	0.124
FGB	F1RX37	0.0957	0.200
FGA_1	F1RX36	0.1340	0.245
LOC100627396	F1RX35	0.3084	0.473
C3_2	F1SBS4	0.3750	0.513
C3_1	CO3	0.5868	0.726
HBE1	F1RII6	1.0000	1.000
<u>Unknown</u>			
I3LP72	I3LP72	0.3393	0.500

Supplemental Figure 1: Anionic detergent detection of effluents during decellularization of wild type and α -gal KO pig lungs revealed no significant differences. SDC concentration consecutive DI water washes after incubation of the lungs with the respective solution. The data from the wild type lungs was already published before as absolute absorption at 630 nm (27) but converted to SDC % concentration.



Supplemental Figure 2: Isolectin B4 staining in incompletely decellularized wild type pig lungs demonstrates residual α -galactosylated proteins or protein debris. Representative image from an incompletely decellularized wild type pig lung demonstrates areas of positive (red) staining (arrow, insert) can be observed in both non-adsorbed and galactose-preadsorbed lectin stainings along with residual DAPI-positive (blue) cell nuclei. Original magnification 200X.

wild type

