

Anhang

Aus der Dissertation hervorgegangenen Veröffentlichungen

Originalarbeiten

M. Bongrazio, C. Baumann, A. Zakrzewicz, A.R. Pries, P. Gaehtgens (2000) Evidence for modulation of genes involved in vascular adaptation by prolonged exposure of endothelial cells to shear stress. *Cardiovasc Res* 47,384-393.

M. Bongrazio, A.R. Pries, A. Zakrzewicz (2003) The endothelium as physiological source of properdin: role of wall shear stress. *Mol Immunol* 39, 669-675.

Kongressbeiträge

M. Bongrazio, A. Zakrzewicz, J. Knöchel, C. Baumann, P. Gaehtgens, A.R. Pries. (2000) Differential expression of thrombospondin repeat type1-containing proteins in flow exposed endothelial cells. *Eur Heart J* 21 (Abstr. Suppl): 359.

M. Bongrazio, A. R. Pries, A. Zakrzewicz. (2001) Shear stress modulates the activation of the alternative complement pathway by induction of properdin in endothelial cells. *Pflug Arch Eur J Phy* 441(6): R155. Suppl.

M. Bongrazio, E.C. Bergmann, A.R. Pries, A. Zakrzewicz (2002) Down-regulation of the Thrombospondin-1/CD36 system in shear stress exposed endothelial cells. *Pflug Arch Eur J Phy* 433: S257 Suppl. 2.

A. Zakrzewicz, **M. Bongrazio**, L. Da Silva-Azevedo, E.C. Bergmann, A.R. Pries (2004) Thrombospondin-1 is differentially regulated during shear stress-induced angiogenesis. *FASEB J.* 18 (5): A1236 Suppl.

Beiträge zum Jahrbuch des Campus Benjamin Franklin

M. Bongrazio, A.R. Pries, A. Zakrzewicz (2001) Shear stress modulates the activation of the alternative complement pathway by induction of properdin in endothelial cells. S. 305.

M. Bongrazio, E.C. Bergmann, A.R. Pries, A. Zakrzewicz (2003) Shear stress-dependent down-regulation of CD36, a modulator of angiogenesis and lipid metabolism. S. 302.

GEArray Q Series Mouse Angiogenesis Gene Array (MM-009)

Array Layout

Adamts1 1	Adamts8 2	Agpt 3	Agpt2 4	Ang 5	Cd36 6	Cdh5 7	Chga 8
Col18a1 9	Csf3 10	Ctgf 11	Edg1 12	Efna2 13	Efna5 14	Efnb2 15	Egf 16
Egfr 17	Eng 18	Ephb4 19	Erbb2 20	Ets1 21	F2 22	Fgf1 23	Fgf16 24
Fgf2 25	Fgf4 26	Fgf6 27	Fgf7 28	Fgfr1 29	Fgfr3 30	Fgfr4 31	Figf 32
Kdr 33	Flt1 34	Fn1 35	Cxcl1 36	Hgf 37	Hif1a 38	Idb1 39	Idb3 40
Ifna1 41	Ifnb 42	Ifng 43	Igf1 44	Il10 45	Il12a 46	Itga5 47	Itgav 48
Itgb3 49	Madh1 50	Mdk 51	Mmp2 52	Mmp9 53	Msr1 54	Nos3 55	Nrp 56
Pdgfa 57	Pdgfb 58	Pdgfra 59	Pdgfrb 60	Pecam 61	Cxcl4 62	Pgf 63	Plau 64
Ptgs1 65	Ptgs2 66	Ptn 67	Rsn 68	Ccl2 69	Serpib5 70	Serpine1 71	Serpib2 72
Serpinf1 73	Sparc 74	Spp1 75	Tek 76	Tgfa 77	Tgfb1 78	Tgfb2 79	Tgfb3 80
Tgfb1 81	Tgfb2 82	Tgfb3 83	Tie1 84	Thbs1 85	Thbs2 86	Thbs3 87	Thbs4 88
Timp1 89	Timp2 90	Tnc 91	Tnf 92	Vcam1 93	Vegfa 94	Vegfb 95	Vegfc 96
PUC18 97	PUC18 98	PUC18 99	Blank 100	Blank 101	Blank 102	Gapd 103	Gapd 104
Ppia 105	Ppia 106	Ppia 107	Ppia 108	Rpl13a 109	Rpl13a 110	Actb 111	Actb 112

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Gene Table

Position	Unigene	GeneBank	Symbol	Description	Gene Name
1	Mm.1421	NM_009621	Adamts1	A disintegrin-like and metalloprotease (reprolysin type) with thrombospondin type 1 motif, 1	Adamts1
2	Mm.100582	NM_013906	Adamts8	Mus musculus a disintegrin-like and metalloprotease (reprolysin type) with thrombospondin type 1 mot	Adamts8
3	Mm.2550	NM_009640	Agpt	Angiopoietin	Angiopoietin 1
4	Mm.3425	NM_007426	Agpt2	Mus musculus angiopoietin 2 (Agpt2)	angiopoietin2
5	Mm.202665	NM_007447	Ang	Angiogenin	ANG
6	Mm.18628	NM_007643	Cd36	CD36 antigen	CD36
7	Mm.21767	NM_009868	Cdh5	Cadherin 5	Cadherin 5
8	Mm.4137	NM_007693	Chga	Chromogranin A	Chromogranin A
9	Mm.4352	NM_009929	Col18a1	Procollagen, type XVIII, alpha 1	COL18A1
10	Mm.1238	NM_009971	Csf3	Colony stimulating factor 3 (granulocyte)	G-CSF
11	Mm.1810	NM_010217	Ctgf	Connective tissue growth factor	Fisp12
12	Mm.982	NM_007901	Edg1	Endothelial differentiation sphingolipid G-protein-coupled receptor 1	Edg1
13	Mm.1478	NM_007909	Efna2	Mus musculus ephrin A2 (Efna2)	Ephrin A2
14	Mm.7978	NM_010109	Efna5	Ephrin A5	Ephrin A receptor
15	Mm.4005	NM_010111	Efnb2	Ephrin B2	Ephrin B2
16	Mm.1341	NM_010113	Egf	Epidermal growth factor	EGF
17	Mm.8534	NM_007912	Egfr	Epidermal growth factor receptor	EGFR
18	Mm.225297	NM_007932	Eng	Endoglin	Endoglin
19	Mm.34533	NM_010144	Ephb4	Eph receptor B4	Ephrin B4
				V-erb-b2 ervthroblastic leukemia viral oncoene	

				homolog 2, neuro/glioblastoma derived oncogene homolog (avian)	
21	Mm.14115	NM_011808	Ets1	E26 avian leukemia oncogene 1, 5' domain	Ets-1
22	Mm.89048	NM_010168	F2	Mus musculus coagulation factor II (F2)	Prothrombin kringle-1
23	Mm.5087	NM_010197	Fgf1	Fibroblast growth factor 1	aFGF
24	Mm.154768	NM_030614	Fgf16	Fibroblast growth factor 16	FGF16
25	Mm.57094	NM_008006	Fgf2	Fibroblast growth factor 2	bFGF
26	Mm.4956	NM_010202	Fgf4	Fibroblast growth factor 4	FGF4
27	Mm.3403	XM_132863	Fgf6	Fibroblast growth factor 6	FGF6
28	Mm.57177	NM_008008	Fgf7	Fibroblast growth factor 7	FGF7/KGF
29	Mm.254496	NM_010206	Fgfr1	Fibroblast growth factor receptor 1	FLG
30	Mm.6904	NM_008010	Fgfr3	Fibroblast growth factor receptor 3	FGFR3
31	Mm.230941	NM_008011	Fgfr4	Fibroblast growth factor receptor 4	FGFR4
32	Mm.295749	NM_010216	Figf	C-fos induced growth factor	VEGF-D/FIGF
33	Mm.285	NM_010612	Kdr	Kinase insert domain protein receptor	VEGFR2/FLK 1
34	Mm.3464	NM_010228	Flt1	FMS-like tyrosine kinase 1	VEGFR
35	Mm.193099	XM_129845	Fn1	Mouse fibronectin (FN) mRNA	Fn1
36	Mm.21013	NM_008176	Cxcl1	Chemokine (C-X-C motif) ligand 1	Gro1
37	Mm.267078	XM_131908	Hgf	Hepatocyte growth factor	HGF
38	Mm.3879	NM_010431	Hif1a	Hypoxia inducible factor 1, alpha subunit	Hif1a
39	Mm.444	NM_010495	Idb1	Inhibitor of DNA binding 1	ID1
40	Mm.110	NM_008321	Idb3	Inhibitor of DNA binding 3	ID3
41	Mm.57127	NM_010502	Ifna1	Interferon alpha family, gene 1	IFNA1
42	Mm.1245	NM_010510	Ifnb	Interferon beta, fibroblast	IFN-b1
43	Mm.240327	NM_008337	Ifng	Interferon gamma	IFN r
44	Mm.268521	NM_010512	Igf1	Insulin-like growth factor 1	IGF-1
45	Mm.874	NM_010548	Il10	Interleukin 10	IL-10
46	Mm.103783	NM_008351	Il12a	Interleukin 12A	IL-12A
47	Mm.16234	NM_010577	Itga5	Integrin alpha 5 (fibronectin receptor alpha)	Integrin a5
48	Mm.4427	NM_008402	Itgav	Integrin alpha V	Cd51
49	Mm.87150	NM_016780	Itgb3	Integrin beta 3	CD61
50	Mm.15185	NM_008539	Madh1	MAD homolog 1 (Drosophila)	Smad1
51	Mm.906	NM_010784	Mdk	Midkine	Midkine
52	Mm.29564	NM_008610	Mmp2	Matrix metalloproteinase 2	Gelatinase A
53	Mm.4406	NM_013599	Mmp9	Matrix metalloproteinase 9	Gelatinase B
54	Mm.1227	NM_031195	Msr1	Macrophage scavenger receptor 1	SR-A
55	Mm.258415	NM_008713	Nos3	Nitric oxide synthase 3, endothelial cell	NOS3
56	Mm.271745	NM_008737	Nrp	Neuropilin	Neuropilin
57	Mm.2675	NM_008808	Pdgfa	Platelet derived growth factor, alpha	PDGF a
58	Mm.144089	NM_011057	Pdgfb	Platelet derived growth factor, B polypeptide	PDGF b
59	Mm.2924	NM_011058	Pdgfra	Platelet derived growth factor receptor, alpha polypeptide	PDGFRa
60	Mm.4146	NM_008809	Pdgfrb	Platelet derived growth factor receptor, beta polypeptide	PDGFRb
61	Mm.2822	NM_008816	Pecam	Platelet/endothelial cell adhesion molecule	PECAM1
62	Mm.23905	NM_019932	Cxcl4	Chemokine (C-X-C motif) ligand 4	PF4
63	Mm.4809	NM_008827	Pgf	Placental growth factor	Placental growth factor
64	Mm.4183	NM_008873	Plau	Plasminogen activator, urokinase	PLAU
65	Mm.275434	NM_008969	Ptgs1	Prostaglandin-endoperoxide synthase 1	PTGS1
66	Mm.292547	NM_011198	Ptgs2	Prostaglandin-endoperoxide synthase 2	Cox-2
67	Mm.3063	NM_008973	Ptn	Pleiotrophin	PTN
68	Mm.227279	NM_019765	Rsn	Restin (Reed-Steinberg cell-expressed intermediate filament-associated protein)	Restin
69	Mm.145	NM_011333	Ccl2	Chemokine (C-C motif) ligand 2	Scya2
70	Mm.268618	NM_009257	Serpib5	Serine (or cysteine) proteinase inhibitor, clade B, member 5	Maspin
71	Mm.250422	NM_008871	Serpine1	Serine (or cysteine) proteinase inhibitor, clade E, member 1	PAI-1
72	Mm.271870	NM_011111	Serpib2	Serine (or cysteine) proteinase inhibitor, clade B, member 2	PAI-2

73	Mm.2044	NM_011340	Serpinf1	Serine (or cysteine) proteinase inhibitor, clade F), member 1	Pedf
74	Mm.35439	NM_009242	Sparc	Secreted acidic cysteine rich glycoprotein	BM-40
75	Mm.288474	NM_009263	Spp1	Secreted phosphoprotein 1	Osteopontin
76	Mm.14313	NM_013690	Tek	Endothelial-specific receptor tyrosine kinase	Tie-2
77	Mm.295706	NM_031199	Tgfa	Transforming growth factor alpha	TGF-a
78	Mm.9154	NM_011577	Tgfb1	Transforming growth factor, beta 1	TGFb1
79	Mm.18213	NM_009367	Tgfb2	Transforming growth factor, beta 2	TGF b2
80	Mm.3992	NM_009368	Tgfb3	Transforming growth factor, beta 3	TGF b3
81	Mm.197552	NM_009370	Tgfr1	Transforming growth factor, beta receptor I	ALK-5
82	Mm.172346	NM_009371	Tgfr2	Transforming growth factor, beta receptor II	TGFbR2
83	Mm.200775	NM_011578	Tgfr3	Transforming growth factor, beta receptor III	Betaglycan
84	Mm.4345	NM_011587	Tie1	Tyrosine kinase receptor 1	Tie1
85	Mm.4159	NM_011580	Thbs1	Thrombospondin 1	THBS1
86	Mm.26688	NM_011581	Thbs2	Thrombospondin 2	THBS2
87	Mm.2114	NM_013691	Thbs3	Mus musculus thrombospondin 3 (Thbs-3)	THBS3
88	Mm.20865	NM_011582	Thbs4	Mus musculus thrombospondin-4 mRNA	THBS4
89	Mm.8245	NM_011593	Timp1	Tissue inhibitor of metalloproteinase 1	Timp
90	Mm.206505	NM_011594	Timp2	Tissue inhibitor of metalloproteinase 2	TIMP2
91	Mm.980	NM_011607	Tnc	Tenascin C	Tenascin C
92	Mm.1293	NM_013693	Tnf	Tumor necrosis factor	TNFA
93	Mm.76649	NM_011693	Vcam1	Vascular cell adhesion molecule 1	VCAM-1
94	Mm.31540	NM_009505	Vegfa	Vascular endothelial growth factor A	VEGF/VEGI
95	Mm.15607	NM_011697	Vegfb	Vascular endothelial growth factor B	VEGF-B
96	Mm.1402	NM_009506	Vegfc	Vascular endothelial growth factor C	VEGF-C
97	N/A	L08752	PUC18	PUC18 Plasmid DNA	pUC18
98	N/A	L08752	PUC18	PUC18 Plasmid DNA	pUC18
99	N/A	L08752	PUC18	PUC18 Plasmid DNA	pUC18
100					
101					
102					
103	Mm.5289	NM_008084	Gapd	Glyceraldehyde-3-phosphate dehydrogenase	GAPDH
104	Mm.5289	NM_008084	Gapd	Glyceraldehyde-3-phosphate dehydrogenase	GAPDH
105	Mm.5246	NM_008907	Ppia	Peptidylprolyl isomerase A	CyclophilinA
106	Mm.5246	NM_008907	Ppia	Peptidylprolyl isomerase A	CyclophilinA
107	Mm.5246	NM_008907	Ppia	Peptidylprolyl isomerase A	CyclophilinA
108	Mm.5246	NM_008907	Ppia	Peptidylprolyl isomerase A	CyclophilinA
109	Mm.180458	NM_009438	Rpl13a	Ribosomal protein L13a	RPL13A
110	Mm.180458	NM_009438	Rpl13a	Ribosomal protein L13a	RPL13A
111	Mm.297	NM_007393	Actb	Actin, beta, cytoplasmic	Beta-actin
112	Mm.297	NM_007393	Actb	Actin, beta, cytoplasmic	Beta-actin

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Tierversuchsgenehmigung

Die Tierversuche wurden genehmigt im Rahmen des Tierversuchsvorhabens G0239/02 : "Mechanismus der Angiogenese im Skelettmuskel von Mäusen ausgelöst durch Prazosinzugabe", verantwortlicher Leiter Prof. Dr. Axel R. Pries.

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Lebenslauf und Publikationsverzeichnis

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Berufstätigkeit:

01/1990 - 12/1991 Erhalt eines Stipendiums von CNR (Italian National Research Council): Ausführung an der Freien Universität Berlin, Inst. für Gyn. Endokrinologie, Dr. S. Nigam (02/1990 – 11/1991)
01/1992 - 02/1992 Keine Berufstätigkeit
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