

	1						60
Rat TM	MLGVFLGLV	APAGLGISAL	AKLQPKGSQC	VGNECFALFQ	DPVTFLDASQ	ACQRLQGHLM	
Mouse TM	MLGIFFLGLV	APASLGLSAL	AKLQPTGSQC	VEHECFALFQ	GPATFLDASQ	ACQRLQGHLM	
Human TM	MLGVLVLGAL	ALAGLGFPAP	AEPQPGGSQC	VEHDCFALYP	GPATFLNASQ	ICDGLRGHLM	
Bovine TM	-----	-----	-----	-----	-----	-----	
	61						120
Rat TM	TVRSSVAADV	ISLLVS-DSS	MDSR-PWIGL	QLPQCGDPV	HLGPLRGFQW	VTGDNHTSYS	
Mouse TM	TVRSSVAADV	ISLLLS-QSS	MDLG-PWIGL	QLPQCGDDPV	HLGPLRGFQW	VTGDNHTSYS	
Human TM	TVRSSVAADV	ISLLLNGDGG	VGRRRLWIGL	QLPPGCGDPK	RLGPLRGFQW	VTGDNNTSYS	
Bovine TM	-----	-----	-----	-----	-----	-----	
	121						180
Rat TM	RWARPNQSP	LCGPLCVTV	STATEAAPGE	PAWEEKPCEN	ETKGFLECFY	FAAFCRPLRV	
Mouse TM	RWARPNQTP	LCGPLCVTV	STATEAAPGE	PAWEEKPCET	ETQGFLECFY	FTASCRPLTV	
Human TM	RWARLDLNG	LCGPLCVAV	SAAEATVPSE	PIWEEQCEV	KADGFLECFH	FPATCRPLAV	
Bovine TM	-----	-----	-----	-----	-----	-----	
	181						240
Rat TM	NTRDPEGAHI	SSTYNTPLGV	SGADFQTLPI	GSSATVAPFG	LELVCRALFG	TSEGHWTREY	
Mouse TM	NTRDPEAAHI	SSTYNTPFV	SGADFQTLPI	GSSAAVEPLG	LELVCRAPPG	TSEGHWAWEA	
Human TM	EP-GAAAAAV	SITYGTPFAA	RGADFQALPV	GSSAAVAPLG	LQLMCTAPFG	AVQGHWAWEA	
Bovine TM	-----	-----	-----	-----	-----RGARF	ETEGWASREA	
	241						300
Rat TM	TGAWNC	SVEN	GGCEYMCNRS	ANGPRVCPS	GGDLQADGRS	CAKPVAQLN	ELCEHFCVNN
Mouse TM	TGAWNC	SVEN	GGCEYLCNRS	TNEPRCLCPR	DMDLQADGRS	CARPVVQSON	ELCEHFCVSN
Human TM	PGAWDC	SVEN	GGCEHACNAI	PGAPRCQCPA	GAALQADGRS	CTASATQSON	DLCEHFCVSN
Bovine TM	PGAWACG	VER	GGCEHECKGS	AGASNCICFA	DAALQADGRS	CGLPAEHPCH	QLCEHFCVSN
	301						360
Rat TM	SDVFG	SYSCM	CEITGYQLAAD	QHRCEDVDDC	KQGNPCPQL	CVNTEGGFEC	RCYDGYELVD
Mouse TM	AEVFG	SYSCM	CEITGYQLAAD	QHRCEDVDDC	KQGNPCPQL	CVNTEGGFEC	FCYDGYELVD
Human TM	PDQFG	SYSCM	CEITGYRLAAD	QHRCEDVDDC	ILEPSPCPQR	CVNTEGGFEC	HCYPNYDLVD
Bovine TM	G--LGN	YTCI	CEAGYQLAAD	QHRCEDVDDC	AQLPSPCPQR	CVNTEGGFEC	HCYDGYELVD
	361						420
Rat TM	GECVEQLDPC	FRSKCEYQCC	FVNSTHYNCI	CAEGFAPKLD	DEDRCEMFCN	ETSCPADCDF	
Mouse TM	GECVELLDPC	FGSNCEYQCC	FVSPTDYRCI	CAEGFAPKPD	EFHKCEMFCN	ETSCPADCDF	
Human TM	GECVEPVDPC	FRANCEYQCC	FLNQTSYLCV	CAEGFAPIPH	EFHRCMFCN	QTACPADCDF	
Bovine TM	GECVDPVDPC	FQNNCEYQCC	FVGRSEHKCI	CAEGFAPVPG	AEHKCEMFCN	QTSCPADCDF	
	421						480
Rat TM	NSPSFCCPE	GFILDEGSIC	TDIDEC	SQGE	CLTNECRNLP	GSYECICGPD	TALAGQISKD
Mouse TM	NSPTVCECPE	GFILDEGSVC	TDIDEC	SQGE	CFTSECRNFP	GSYECICGPD	TALAGQISKD
Human TM	NTQASCECPE	GYILDDGFIC	TDIDEC	ENGG	FCSGVCHNLP	GTFECICGPD	SALARHIGTD
Bovine TM	HYPTICRCPE	GVILDEGSIC	TDINECDTN-		ICPGCHNLP	GTYECICGPD	SALSGQIGID
	481						540
Rat TM	CDPIP	VLEDS	----EDGSG	EHPSSNPTVV	SSTVP-PS-A	RPMHSGVLLIG	ISIASLSLVV
Mouse TM	CDPIP	VREDT	K---EEEGSG	EPPVS-PTPG	SPTGP-PS-A	RPVHSGVLLIG	ISIASLSLVV
Human TM	CD--SGK	VDG	----GDSGS	EPPPS-PTPG	STLTP-PA-V	GLVHSGVLLIG	ISIASLQLVV
Bovine TM	CDPTQ	VNEER	GTPEYDGS	SG	EPPVS-PTPG	ATARESPAPA	GPLHSGVLLIG
	541						585
Rat TM	ALLALLCHLR	KKQGAFAEL	EYKCTSSAKE	VVLQMRIFR	IFLQKF		
Mouse TM	ALLALLCHLR	KKQGAFAEL	EYKCASSAKE	VVLQMRIFR	IFLQKF		
Human TM	ALLALLCHLR	KKQGAFAKAM	EYKCAAPSKE	VVLQMRIFR	IFQRL		
Bovine TM	ALLALLCHLR	KKQGAFAEGL	EYKCGVPAKE	LMQCMRIFR	IFQKL		

Fig. 1. Comparison of amino acid sequences of rat, mouse, human and bovine thrombomodulin.

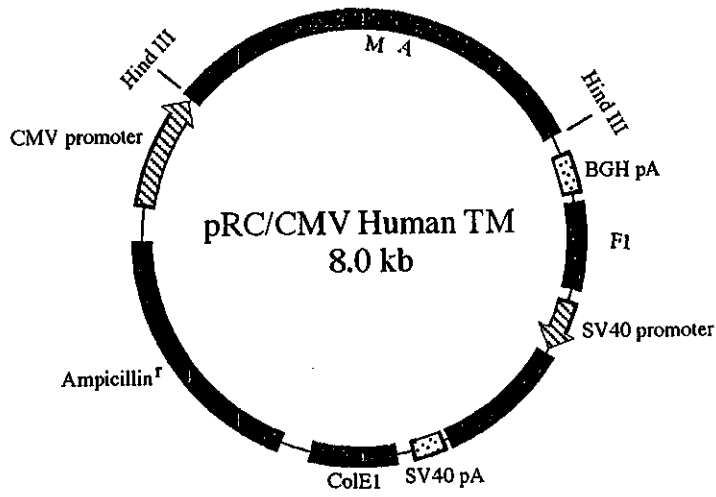


Fig. 2. Expression vector of human thrombomodulin.

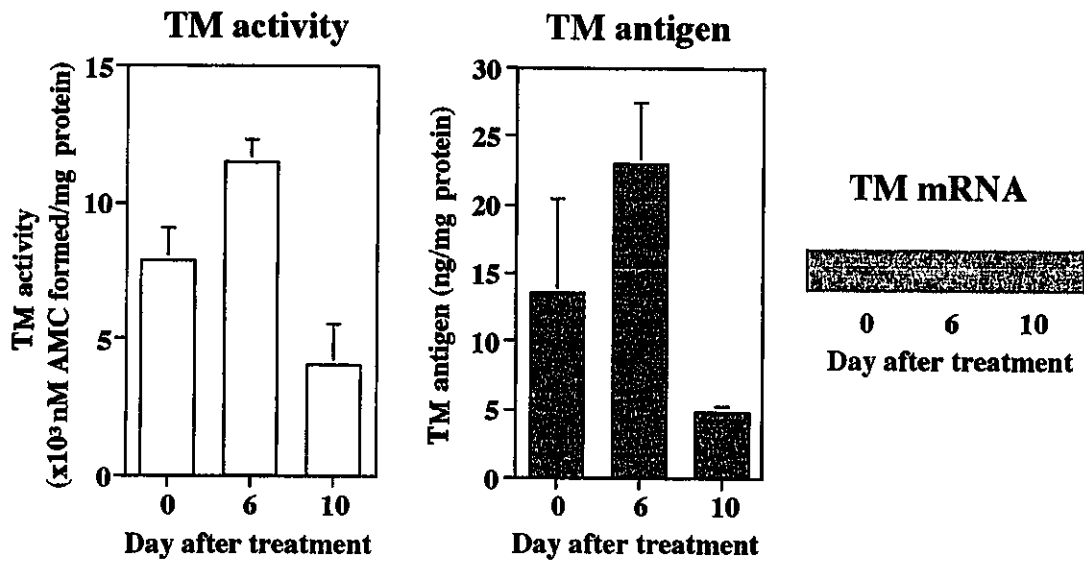


Fig. 3. Effect of fusogenic liposome containing human TM expression vector in the in vivo studies.

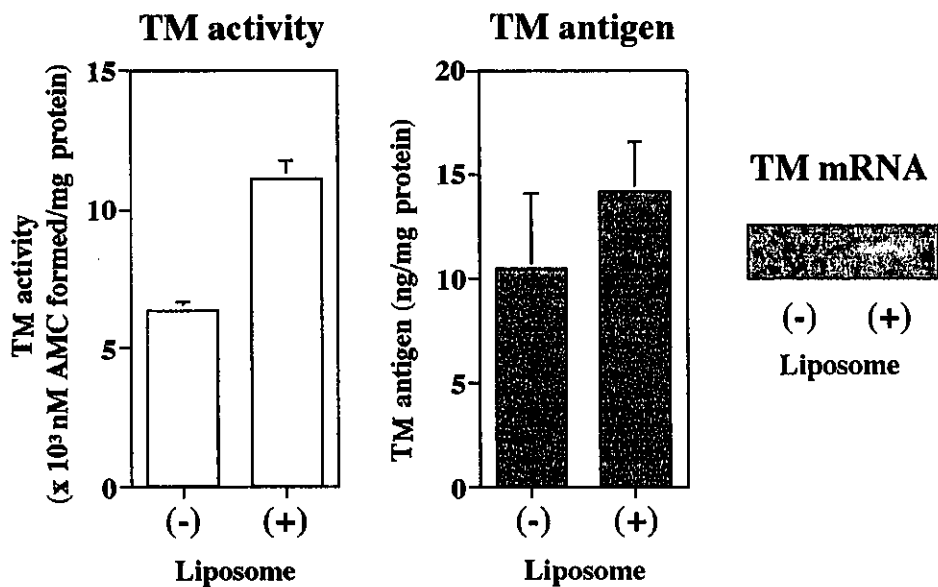


Fig. 4. Effect of fusogenic liposome containing human TM expression vector in the in vitro studies.

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これ以降は雑誌/図書等に掲載された論文となりますので  
下記の「研究成果の刊行に関する一覧表」をご参照ください。

### 研究成果の刊行に関する一覧表

**Tumor necrosis factor  $\alpha$ -mediated tumor regression by the in vivo transfer of genes into the artery that leads to tumors**

Hiroyuki Mizuguchi, Tetsuhiko Nakagawa, Satoru Toyosawa...

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Watabe A, Yamaguchi T, Kawanishi T, Uchida E, Eguchi A, Mizuguchi H, Mayumi T, Nakanishi M, Hayakawa T.

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**膜融合リポソームによる体液性免疫誘導増強**

國澤 純、中西 剛、林 哲、堤 康央...

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**膜融合リポソームを用いた外来性抗原の MHC class I 分子を介する抗原提示**

國澤 純、中西 剛、林 哲、堤 康央...

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**T7 RNA polymerase を利用した細胞質内遺伝子発現系の最適化**

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**VSV を利用した新規遺伝子導入ベクターの開発**

今津 進、中川晋作、中西 剛….

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**リポソームのカチオン化による腫瘍ワクチン用アジュバンド効果増強**

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**膜融合リポソームによる細胞内への物質導入**

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日薬理誌 112 1998 P.299-305

**膜融合リポソームによる細胞内遺伝子導入法**

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**テロメア・シーディング**

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