

抽出遺伝子(648 ps)についての転写制御の解析 (*in silico*)
 —Shhシグナルの制御を受けているもの探索—

既存の発現制御データベースIngenuity Pathways Analysis (IPA)
 (Ingenuity Systems Inc.)におけるUpstream Analysisを用いて検討

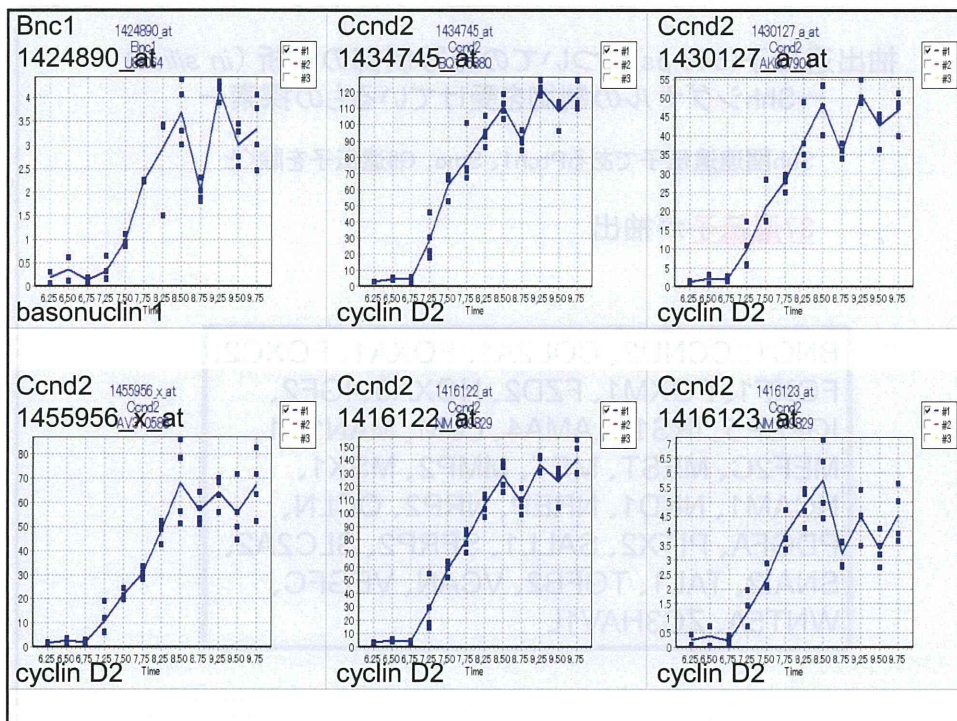
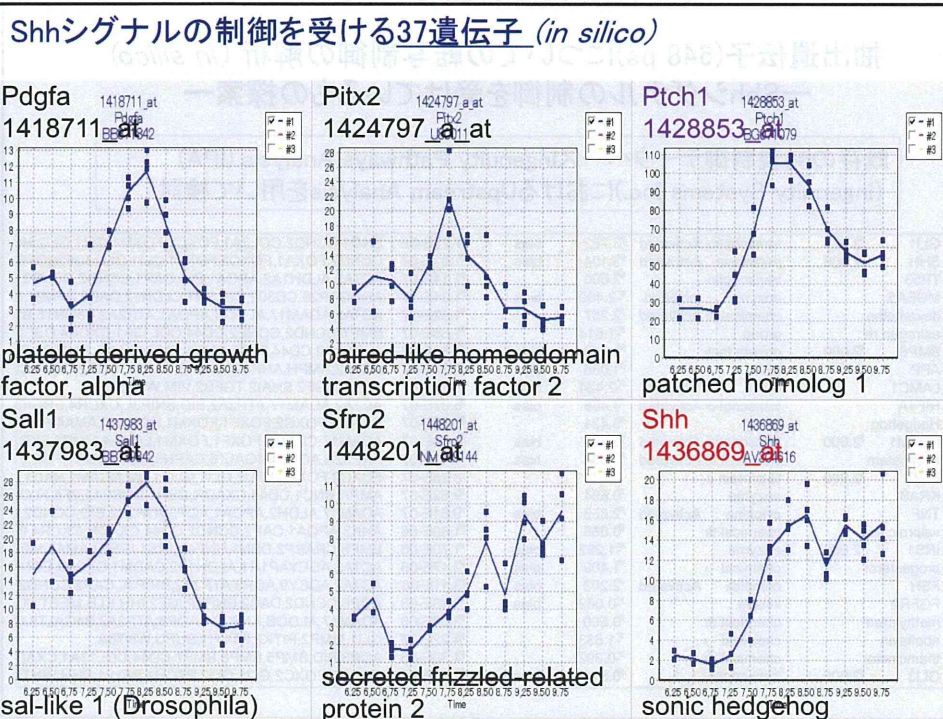
GLI1	2.000	transcriptio	Activated	3.762	bias	7.23E-08	BNC1,CCND2,COL2A1,FOXC2,FOXM1,GLI1,GLI2,HO
SHH	2.000	peptidase	Activated	3.104	bias	1.03E-07	CCND2,FOXA1,FOXC2,FOXF1,GLI1,IGF2,IGFB
TP53		transcriptio		2.000		1.14E-07	ACTA2,ALDH1A2,APOA1,BID,CAP1,CCND2,CCNE2,
MGEA5		enzyme	Inhibited	2.400	bias	1.34E-07	ARHGAP29,CD302,CELSR1,CLDN12,DAB2,EFNB1,E
dexametha		chemical dr	Activated	2.257		1.52E-07	ACTA2,ADAM17,ALDOB,APOA1,ATP2A2,B3GNT5,BI
estrogen re		group		1.614		1.68E-07	BMP7,CCND2,CCNE2,CD44,COL13A1,CXCR4,DSC2
BMP6	2.000	growth fact		1.238	bias	1.83E-07	ALDH1A2,CD44,E2F5,GNB4,HMGA2,MBL2,MEIS1,P
APP		other		1.036	bias	2.37E-07	ACTA2,AMPH,ANP32A,BMP6,CAP1,CCND2,CD44,C
LAMC1		complex	Inhibited	2.434	bias	5.19E-07	ACTA2,IGF2,SNAI2,TGFB2,VIM,WNT5A
HIF1A		transcriptio	Activated	4.488	bias	6.07E-07	ACTA2,ADAM17,ATP2A2,BID,BNIP3L,CXCR4,ERGIC
Hedgehog		group		0.431		6.22E-07	CCND2,FOXC2,FOXF1,FOXM1,HOXA5,LAMA4,PTCH
FOXM1	2.000	transcriptio	Activated	3.394	bias	6.84E-07	ADAM17,CCNE2,FOXF1,FOXM1,LAMA4,MMP2,SKP
thioacetam		chemical to	Activated	2.356	bias	7.42E-07	ANP32A,AQP8,B4GALT6,CAPN6,CD44,DBN1,FGF,F
SMO	2.000	G-protein c				8.28E-07	FOXC2,FOXF1,FZD2,GLI1,GLI2,LUM,NCAM1,NKD1,
KRAS		enzyme		0.694		9.62E-07	AMPH,BNC1,CD44,CXADR,DBN1,DUSP4,E2F5,FLO
TNF		cytokine	Activated	2.853	bias	9.81E-07	ADAM17,ALDH2,APOA1,AQP3,ATP2A2,BID,CCND2,
valproic aci		chemical dr		0.065		1.68E-06	ANK3,APOA1,CAP2,CCND2,CD44,CXADR,CXCR4,F
IRS1	2.000	enzyme		1.292	bias	1.70E-06	BMP6,CRABP2,DBN1,HNF4A,IRS1,IRS2,LAMA4,MEI
progesteron		chemical - i		1.409	bias	2.47E-06	ACTA2,ADCYAP1R1,ALDH1A2,CADM1,CXCR4,EDNI
FSH		complex	Activated	2.203	bias	3.11E-06	ACTA2,ADCY9,AQP3,ATP2A2,BNIP3L,CAP2,CCND2
FGFR2		kinase		0.082	bias	3.15E-06	AQP8,CCND2,DAB2,ENPEP,IGF2,IHH,KLB,MEST,NC
methylpred		chemical dr		0.560		3.33E-06	ADAM17,ALDOB,ANP32A,AQP8,ATP2A2,B4GALT6,C
riboflavin		chemical - i		1.633		4.22E-06	GLI1,MMP2,PITX2,PTCH1,SUFU,WNT8A
triamcinolo		chemical dr		0.392		4.30E-06	AQP3,BID,BMP5,BMP6,BMP7,CD44,COL13A1,CXAD
GLI3	2.000	transcriptio		0.515	bias	4.58E-06	CCND2,FOXC2,GLI1,GLI2,PTCH1,SALL1,SHH,WNT5

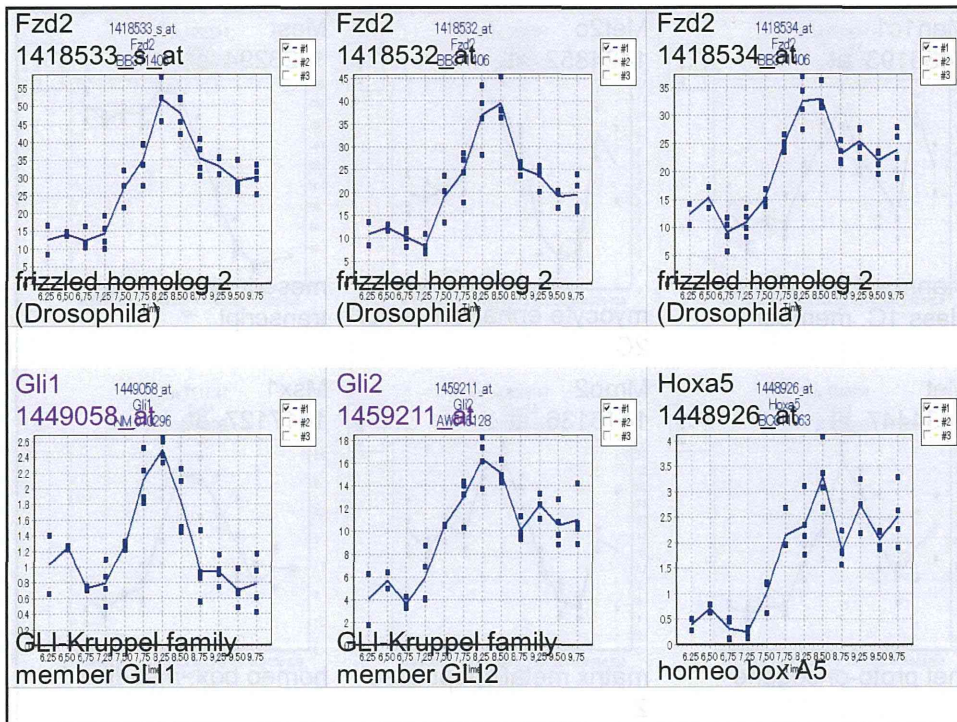
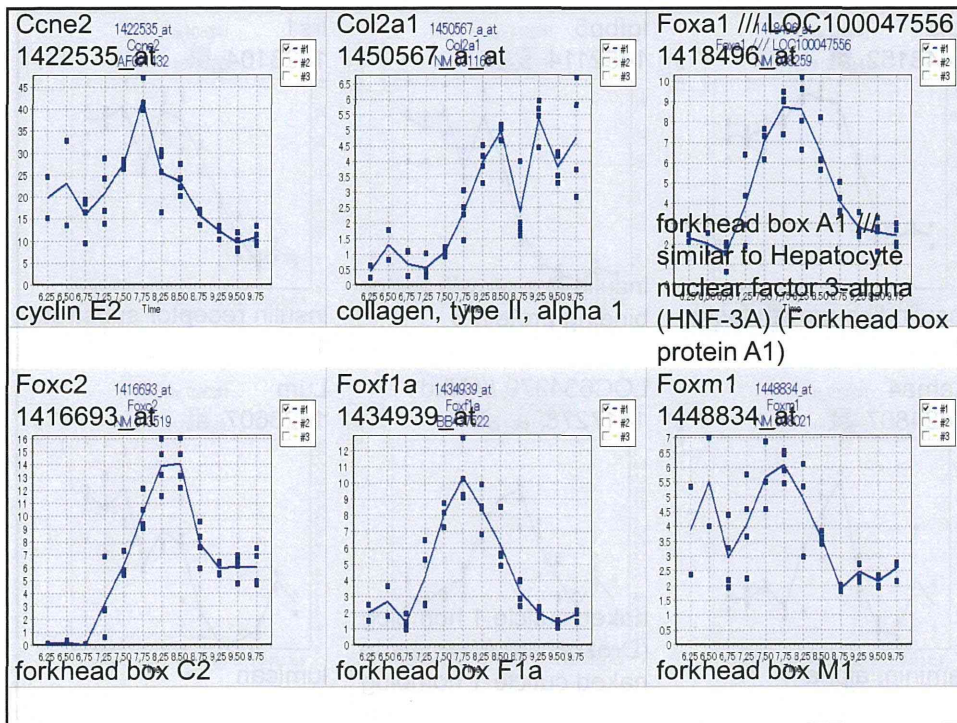
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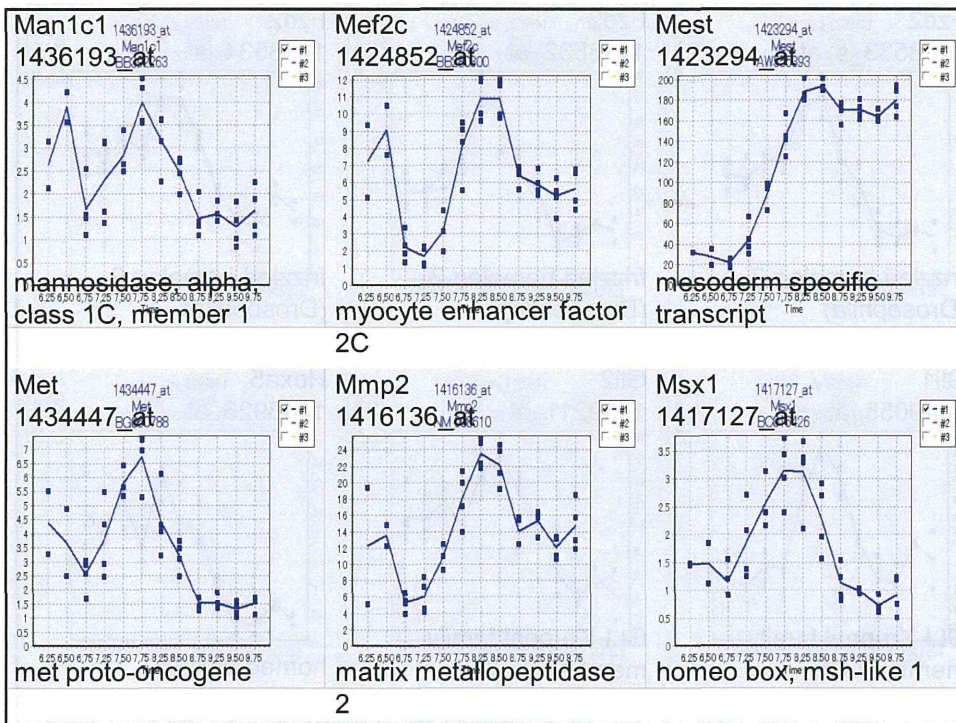
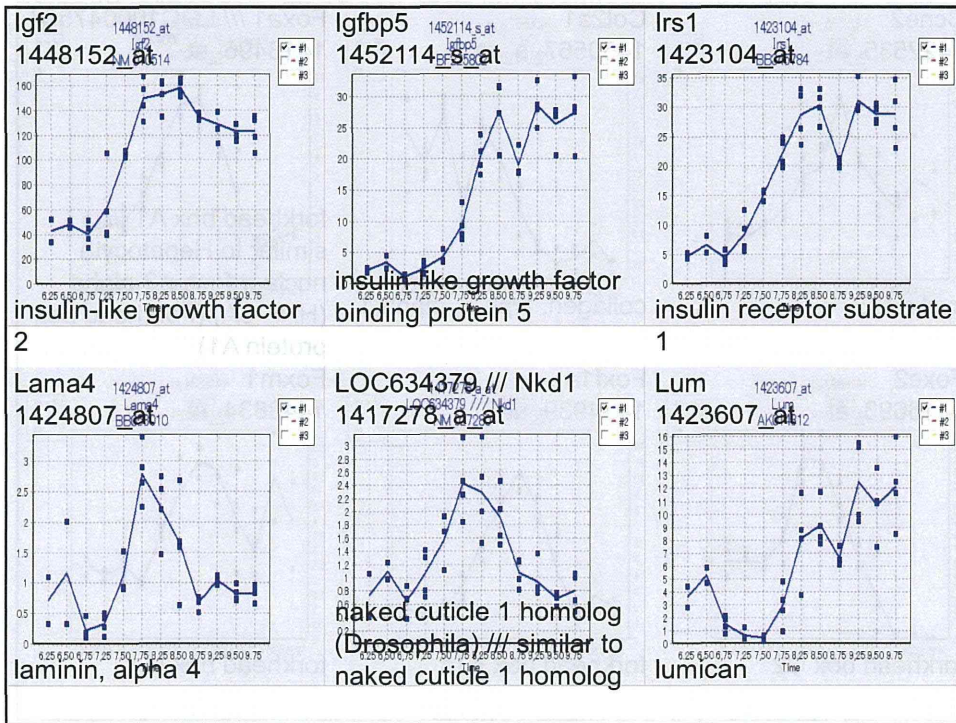
Shh関連遺伝子であるPtch1、Smo、Gli遺伝子を除くと

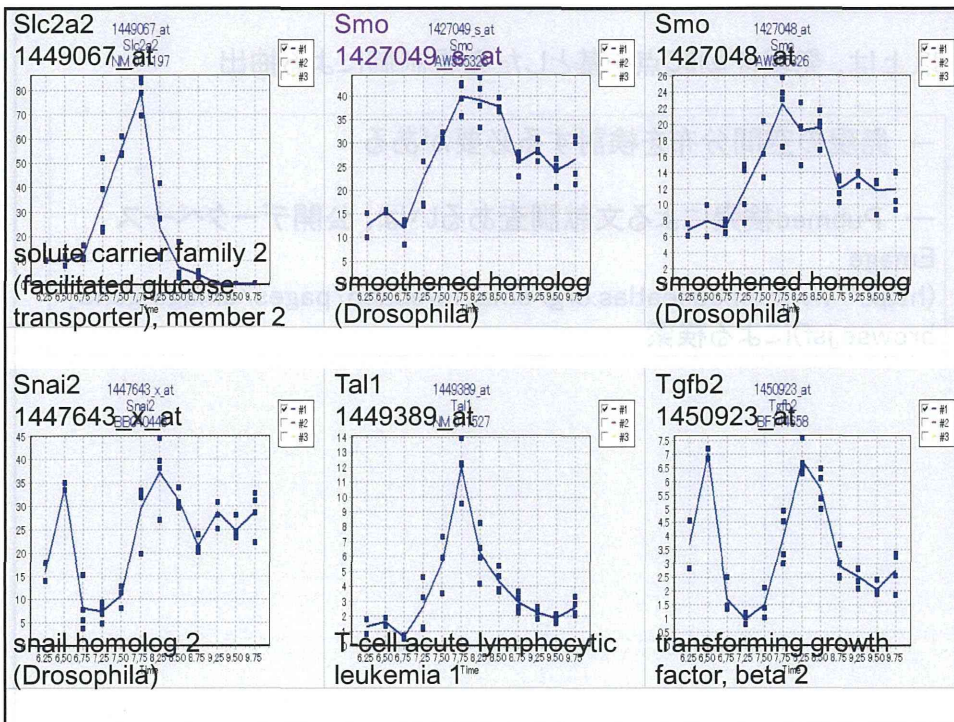
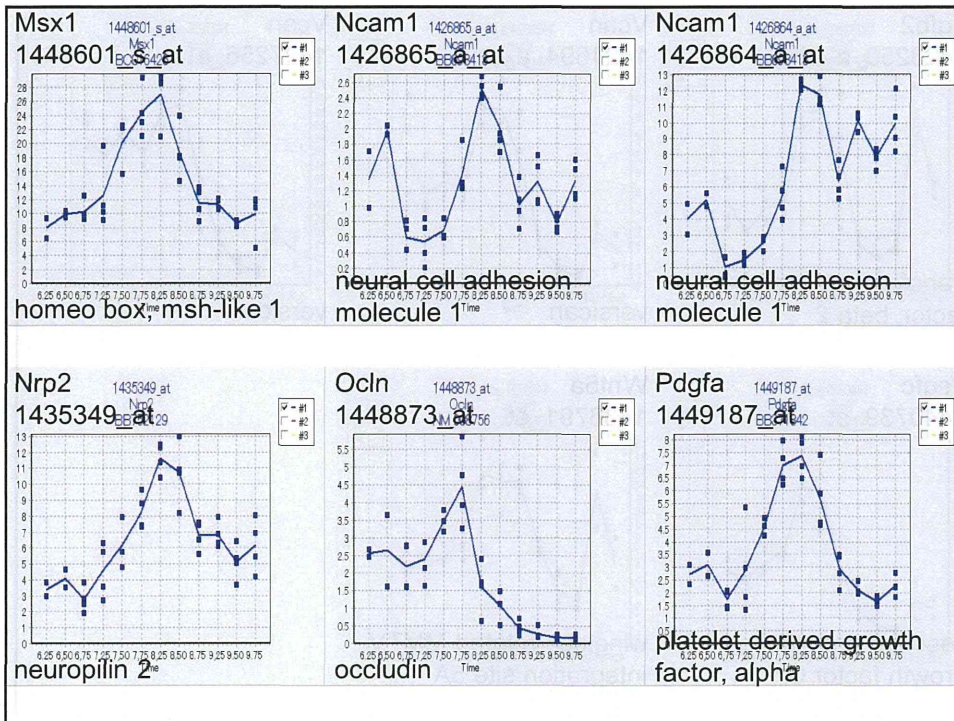
37遺伝子が抽出

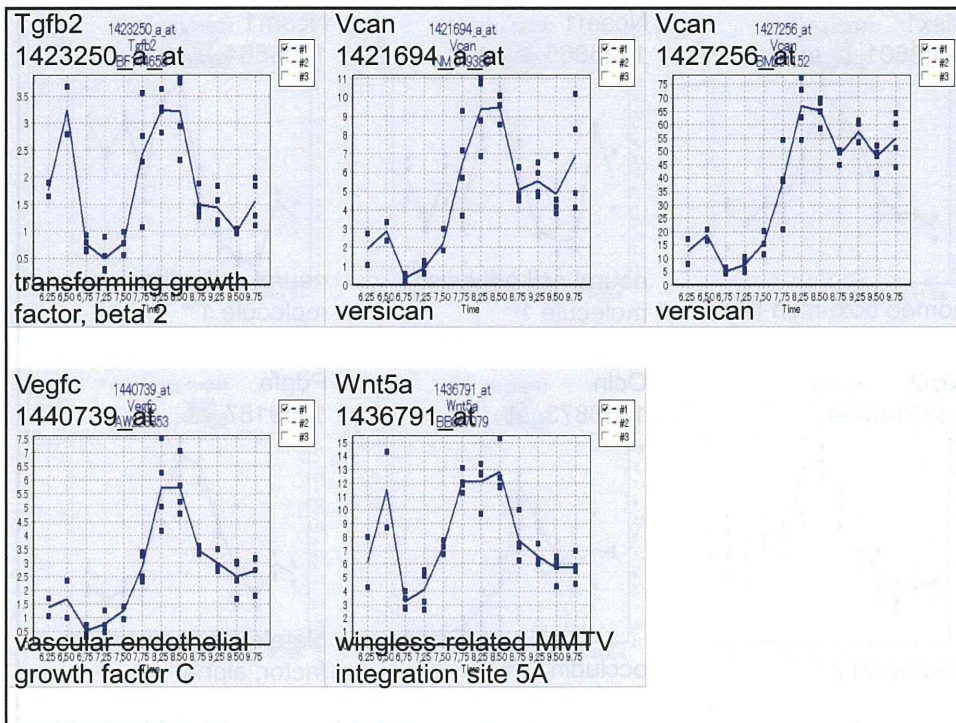
BNC1、CCND2、COL2A1、FOXA1、FOXC2、
 FOXF1、FOXM1、FZD2、HOXA5、IGF2、
 IGFBP5、IRS1、LAMA4、LUM、MAN1C1、
 MEF2C、MEST、MET、MMP2、MSX1、
 NCAM1、NKD1、NREP、NRP2、OCLN、
 PDGFA、PITX2、SALL1、SFRP2、SLC2A2、
 SNAI2、TAL1、TGFB2、VCAN、VEGFC、
 WNT5A、ZC3HAV1L











以上は、発現変動起点を基とした発現制御による抽出

→ 発現の空間分布を検討する必要がある

→ Pubmed検索による文献調査あるいは、公開データベース Emage

(http://www.emouseatlas.org/emagewebapp/pages/emage_gene_browse.jsf)による検索

胚でのISHの公開データベース

Emage (http://www.emouseatlas.org/emagewebapp/pages/emage_gene Browse.jsf)

例: Shh

Expression Image Summary

Page 1 of 1

Display 5 entries per page

Flexible Scroll

Gene/Protein (1)	Thelier Stage (12)	Structure (82)	Find Similar (1)	3D Expression (1)	2D Expression (10)	Data Image (44)
Shh	TS12	<ul style="list-style-type: none"> foregut diverticulum hindgut diverticulum endoderm notochord 				
Shh	TS14	<ul style="list-style-type: none"> diencephalon floorplate embryo future midbrain floorplate 				

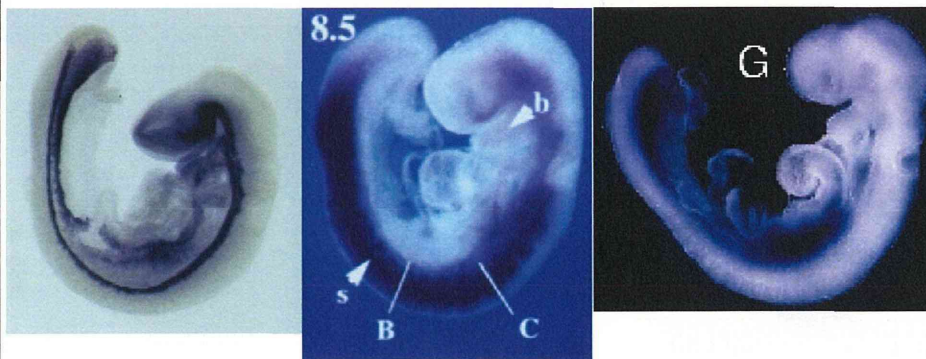
Emage検索によるISHデータ

胎生約9.5日胚

Shh sonic hedgehog

Foxc2 forkhead box C2

Foxf1a forkhead box F1a



Emage検索によるISHデータ

胎生約9.5日胚

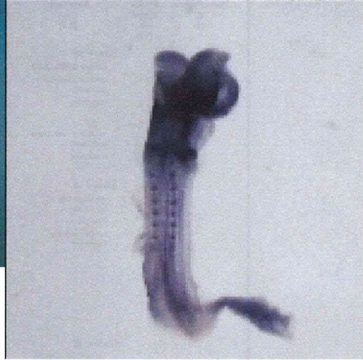
Shh sonic hedgehog



Foxm1 forkhead box M1



Igfbp5
insulin-like growth factor
binding protein 5



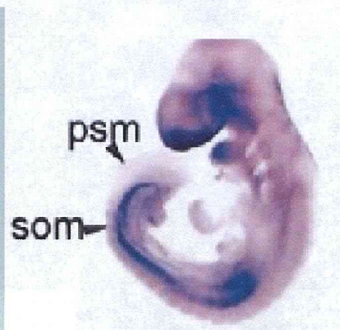
Emage検索によるISHデータ

胎生約9.5日胚

Shh sonic hedgehog



Mest mesoderm specific transcript



Msx1 homeobox,
msh-like 1

