

List of antibodies used in the study.

Name	Sources	Catalog number	Species	Dilution
PECAM	BD biosciences	553370	Rat	1:500
Beta-GAL	MP biomedicals	55976	Rabbit	1:5000
GFP	Invitrogen	A11122	Rabbit	1:200
GFP	abcam	ab6673	Goat	1:100
RFP	Rockland	600-401-379	Rabbit	1:100
NOTCH1	Santa cruz Biotech	sc-6014-R	Rabbit	1:100
COUP TF II	R & D	PP-H7147	Mouse	1:100
ISLET1	DSHB	39.4D5-S	Mouse	1:100
MEF2C	Santa cruz Biotech	sc-13266	Goat	1:100
TBX18	Santa cruz Biotech	sc-17869	Goat	1:100
VEGFR2	BD biosciences	550549	Rat	1:500
ESR	Abcam	ab27595	Rabbit	1:100
RALDH2	Sigma	HPA010022	Rabbit	1:100
WT1	Santa cruz Biotech	sc-192	Rabbit	1:100
NFATc1	BD pharmingen	556602	Mouse	1:100
SMAActin alpha	Sigma	c6198	Mouse	1:100
NKX2-5	Santa cruz Biotech	sc-8697	Goat	1:100
ACTN2	Sigma	A2543	Mouse	1:100
TNNI3	Abcam	ab56357	Goat	1:100
TNNT2	Thermo scientific	MS-295-P1	Mouse	1:100
ABC-HRP	Vector lab	PK-7100	Secondary antibody	Kit protocol
ABC-AP	Vector lab	AK-5000	Secondary antibody	Kit protocol
Anti-rat-HRP IgG	Vector lab	MP-7444	Secondary antibody	Kit protocol
Anti-rabbit-HRP IgG	Vector lab	MP-7401	Secondary antibody	Kit protocol
Anti-mouse-HRP IgG	Vector lab	MP-7402	Secondary antibody	Kit protocol
Anti-goat-HRP IgG	Vector lab	MP-7405	Secondary antibody	Kit protocol
Biotin-anti-rat IgG	JIR	712-065-153	Secondary antibody	Kit protocol
Biotin-anti-rabbit IgG	JIR	711-065-152	Secondary antibody	Kit protocol
Chrompure rabbit IgG	JIR	011-000-003	Secondary antibody	1:100
F(ab') ₂ anti-rabbit IgG	JIR	711-006-152	Secondary antibody	1:50
F(ab') ₂ anti-mouse IgG	JIR	715-007-003	Secondary antibody	1:50
Alexa anti-mouse 488	Invitrogen	A21202	Secondary antibody	1:1000
Alexa anti-mouse 555	Invitrogen	A31570	Secondary antibody	1:1000
Alexa anti-mouse 647	Invitrogen	A31571	Secondary antibody	1:1000
Alexa anti-rabbit 488	Invitrogen	A21206	Secondary antibody	1:1000
Alexa anti-rabbit 555	Invitrogen	A31572	Secondary antibody	1:1000
Alexa anti-rabbit 647	Invitrogen	A31573	Secondary antibody	1:1000
Alexa anti-goat 488	Invitrogen	A11055	Secondary antibody	1:1000
Alexa anti-goat 555	Invitrogen	A21432	Secondary antibody	1:1000
Alexa anti-goat 633	Invitrogen	A21447	Secondary antibody	1:1000
Alexa anti-rat 488	Invitrogen	A11006	Secondary antibody	1:1000

Supplementary information, Table S2

Primer sequence

GENES	Forward	Backward
<i>Gapdh</i>	GAAGGGCTCATGACCACAG	GATGCAGGGATGATGTTCTG
<i>Wt1</i>	AGACACACAGGTGTGAAACCA	ATGAGTCCTGGTGTGGGTCT
<i>Wt1</i>	GCCTTCACCTTGCACTTCTC	GACCGTGCTGTATCCTTGGT
<i>Raldh2</i>	TGGCAGAACTCAGAGAGTGG	CCACCTTGTCTGCTTCTTGA
<i>Apln set1</i>	GTTGCAGCATGAATCTGAGG	TCAGTGGCACTCCACAACT
<i>Apln set2</i>	AGTTTGTGGAGTGCCACTGA	GTAGCGCATGCTTCCTTCTT
<i>Pecam</i>	CTCCAAAGCCAGTAGCATCA	AGGACAGGTCCAACAACCTCC
<i>Vegfr2</i>	CCATTGGAGGAACCAGAAGT	CTCTTCTGATGCAAGGACCA
<i>Nfatc1 set1</i>	CTGGCCATAACTTTCTGCAA	CTTCCATCTCCCAGACGTG
<i>Nfatc1 set2</i>	ACCTGTGCAAGCCAAATTC	ACGCTGGTACTGGCTTCTCT
<i>Sema3d set1</i>	GAGCATCGAGAGGAGTTGAA	AAGTGTGCTCCTGTGCTTTG
<i>Sema3d set2</i>	CTAAATCCCAACAAGCCTCTG	TTCAACTCCTCTCGATGCTC
<i>Apln set3*</i>	GGAAAGGAAAAGCGACAAGAGTTG	CAGTTCTGATGGAATGGTGGTCC
<i>Apln set4*</i>	TCATCCGTGTGCTTCAACCC	ATCATACTGCCCGTCTTCAGCGAC
<i>Sema3d set3*</i>	CAGTACTGTGAGCAGATGTG	CATTACTGCAGTACACTAGATG
<i>Sema3d set4*</i>	CAGGAAGGCAGTACTTCTGAC	GTTCAAGATAGCTGTTGGGTG
<i>Sema3d set5*</i>	TAGAGAGTTTTTGCCGCCGACC	TTTCACTTAGGGACTATTCCG
<i>Sema3d set6*</i>	GGTGAAGAAGGAAGGAGAGATGG	GCAAACCTGGCTAAAAAGTCCCG

*primers for *in situ* hybridization. Others are for PCR.

Supplementary information, Table S3

Coronary Clones generated by $Apln^{CreERT2/+}; Rosa26^{Rainbow/+}$

Embryonic ID $Apln^{CreERT2/+};$ $Rosa26^{Rainbow/+}$	Clone number	Cell number	Distribution of marked cells		
			Coronary artery (intramyocardium)	Coronary vein (subepicardium)	Endocardium
1	1	205	167	38	0
2	1	210	177	33	0
3	1	140	122	18	0
4	1	90	70	20	0
5	1	248	208	40	0
6	1	158	128	30	0
7	2	117	97	20	0
		76	60	16	0
8	2	148	120	28	0
		130	105	25	0
9	2	90	78	12	0
		112	84	28	0
10	3	83	69	14	0
		72	60	12	0
		80	66	14	0
11	3	95	73	22	0
		289	239	50	0
		56	50	6	0
12	3	298	246	52	0
		205	171	34	0
		124	100	24	0
13	3	98	82	16	0
		123	105	18	0
		130	116	14	0
14	4	78	62	16	0
		131	105	26	0
		154	132	22	0
15-85	0	297	261	36	0
		0	0	0	0