

Supporting Information

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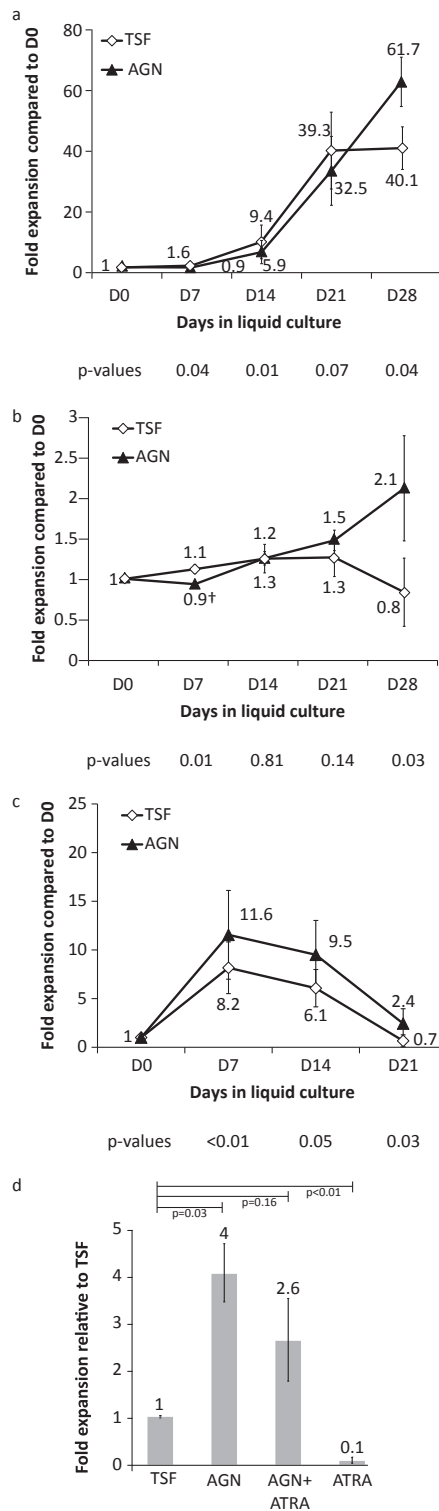


Fig. S1. Effects of inhibition of retinoic acid (RA) signaling on committed and primitive hematopoietic progenitor cells. CD34⁺CD38⁻ cells were incubated with thrombopoietin, stem-cell factor, and Flt3-ligand (TSF) alone or with the addition of 1 μ M AGN194310 (AGN) and/or 0.1 μ M all-*trans* RA (ATRA). (A) Colony-
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Table S1. Target gene expression and predicted regulation by RA receptor α

Gene symbol	Affymetrix transcript ID	Refseq ID	Fold change*	Predicted regulation [†] (literature findings)
RARB	2614369	NM_000965	-1.217	Up-regulates (74)
RARA	3720921	NM_000964	1.758	Up-regulates (24)
CD38	2719656	NM_001775	-1.410	Up-regulates (10)
POU5F1	2948863	NM_203289	-1.438	Up-regulates (10)
SLC10A1	3570266	NM_003049	-1.554	Up-regulates (9)
TRH	2641901	NM_007117	-1.478	Up-regulates (9)
APOC3	3350655	NM_000040	-1.139	Up-regulates (8)
RBP2	2697839	NM_004164	-1.406	Up-regulates (8)
CRABP2	2438458	NM_001878	-1.181	Up-regulates (7)
PENK	3136271	NM_001135690	-1.040	Up-regulates (6)
SFTPB	2562435	NM_000542	-1.337	Up-regulates (6)
MAOB	4006210	NM_000898	-1.254	Up-regulates (5)
DRD2	3391653	NM_000795	-1.068	Up-regulates (4)
EGR1	2830861	NM_001964	1.637	Up-regulates (4)
ALDH1A1	3209726	NM_000689	4.860	Up-regulates (3)
CNGA2	3995105	NM_005140	-1.251	Up-regulates (3)
RBP1	2697863	NM_001130992	-1.051	Up-regulates (3)
EPO	3015778	NM_000799	-1.226	Up-regulates (2)
FOLR2	3339382	NM_000803	-1.220	Up-regulates (2)
HNF1B	3754797	NM_000458	-1.179	Up-regulates (2)
HOXA1	3042730	NM_005522	-1.161	Up-regulates (2)
KIRREL2	3830925	NM_199180	-1.297	Up-regulates (2)
MMP11	3939470	NM_005940	-1.178	Up-regulates (2)
NEDD9	2941784	NM_001142393	-1.190	Up-regulates (2)
RET	3243846	NM_020975	-1.111	Up-regulates (2)
TP63	2657665	NM_003722	-1.166	Up-regulates (2)
TSHB	2353067	NM_000549	-1.100	Up-regulates (2)
ACACA	3754469	NM_198839	-1.180	Up-regulates (1)
ALDH1A2	3626312	NM_003888	-1.185	Up-regulates (1)
CDX1	2835368	NM_001804	-1.060	Up-regulates (1)
CEBPB	3888613	NM_005194	1.048	Up-regulates (1)
CLMN	3577940	NM_024734	-1.189	Up-regulates (1)
DUSP1	2887309	NM_004417	2.123	Up-regulates (1)
FOXP3	4008011	NM_014009	-1.141	Up-regulates (1)
GAP43	2637112	NM_001130064	-1.249	Up-regulates (1)
GATA4	3086100	NM_002052	-1.130	Up-regulates (1)
HOXA3	3042777	NM_153631	1.095	Up-regulates (1)
HOXA4	3042816	NM_002141	1.193	Up-regulates (1)
HOXD10	2516834	NM_002148	-1.268	Up-regulates (1)
IL13	2828688	NM_002188	-1.325	Up-regulates (1)
IL4	2828699	NM_000589	-1.243	Up-regulates (1)
IL5	2875384	NM_000879	-1.106	Up-regulates (1)
IRF1	2875348	NM_002198	1.021	Up-regulates (1)
JUP	3757329	NM_002230	1.467	Up-regulates (1)
MAFB	3905875	NM_005461	-1.009	Up-regulates (1)
MYCN	2470805	NM_005378	-1.033	Up-regulates (1)
MYCN	2470838	NM_005378	-1.033	Up-regulates (1)
NAV2	3323052	NM_182964	-1.181	Up-regulates (1)
NTRK1	2361761	NM_001007792	-1.140	Up-regulates (1)
OAS1	3432438	NM_016816	1.649	Up-regulates (1)
PCK1	3890640	NM_002591	-1.247	Up-regulates (1)
SMPD1	3318666	NM_000543	1.032	Up-regulates (1)
STAT1	2592268	NM_007315	-1.019	Up-regulates (1)
STRA6	3632806	NM_022369	-1.265	Up-regulates (1)
TH	3359180	NM_199292	-1.217	Up-regulates (1)
OXT	3874198	NM_000915	-1.015	Regulates (9)
CXCR5	3351675	NM_001716	-1.182	Regulates (7)
THBD	3901041	NM_000361	-1.166	Regulates (7)
CDKN1A	2905169	NR_037150	2.607	Regulates (6)
NR2C1	3466318	NM_003297	-2.061	Regulates (5)
LTF	2672140	NM_002343	-1.130	Regulates (4)
TG	3116614	NM_003235	1.210	Regulates (4)
APOA1	3392986	NM_000039	-1.189	Regulates (3)

Table S2. Limiting dilution analysis of NOD/SCID-IL-2R $\gamma^{-/-}$ (NSG) engraftment

Group	Cell dosage	+/total	SRC frequency	<i>P</i> vs. D0	<i>P</i> vs. TSF
D0	2,000	10/14	1:1,758		—
	500	3/15			
D7 TSF	2,000	8/10	1:1,352	0.5	—
	1,524	4/5			
	500	2/10			
	381	1/5			
D7 AGN	2,000	10/10	1:444	<0.01	<0.01
	1,524	5/5			
	500	6/10			
	381	3/5			
D14 TSF	2,000	4/15	1:4,636	0.04	—
	500	3/15			
D14 AGN	2,000	12/15	1: 1,142	0.26	<0.01
	500	6/15			
D21 TSF	2,000	2/10	1:11,471	0.01	—
	500	0/10			
D21 AGN	2,000	4/10	1:5,186	0.06	0.35
	500	0/10			

For primary recipient, NSG engraftment results are pooled from three independent experiments. Several doses (high: 1,524 or 2,000 and low: 381 or 500) of CD34⁺CD38⁻ cells or their progeny after liquid culture were transplanted into sublethally irradiated NSG mice. A level of at least 0.1% of human CD45⁺ cells in the bone marrow of transplanted recipients at 18-20 wk after transplant was used as a cut off for positive animals. Poisson statistics were used to determine the *P* value. AGN, AGN194310; D, day; SRC, SCID-repopulating cells; TSF, thrombopoietin, stem-cell factor, and Flt3 ligand.

Table S3. Secondary NSG transplants

Primary recipient cell dose	D0	D7 secondary recipients (+/total)		D14 secondary recipients (+/total)	
		TSF	AGN	TSF	AGN
High	3/5	3/5	5/5	0/5	2/5
Low	1/5	1/5	2/5	0/5	1/5

For secondary recipients, one-tenth of the femur cellularity of primary recipients positive for human engraftment was transplanted into secondary recipients. Data were analyzed 18 wk after transplant. AGN, AGN194310; D, day; TSF, thrombopoietin, stem-cell factor, and Flt3-ligand.