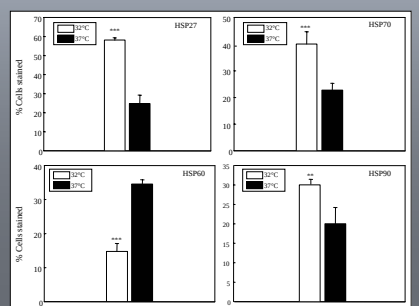
Aging Process ⇒ Searching for connections ⇐ Mesenchymal stem cells

Slow Aging

Temperature

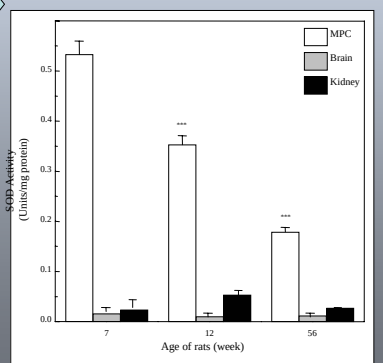


Numbers

Age of rat	*3 week*	*7 week*	*12 week*	*56 week*
Colony number				
Total	160 ± 8.6	124 ± 4.3 ***	121 ± 6.2 ***	92 ± 5.2 ***
Calcium	47.9 ± 2.8	33.8 ± 3.1 ***	21.8 ± 5.2 ***	13.2 ± 2.5 ***
Collagen	39.2 ± 5.2	30.4 ± 6.6 *	29.2 ± 5.8 **	21.3 ± 3.8 ***
Alkaline Phosphatase	85 ± 1.5	56.4 ± 2.8 ***	34.9 ± 3.7 ***	21.1 ± 2.8 ***
Oil Red O	12.1 ± 3	13.6 ± 2.9	12.5 ± 1.7	12.4 ± 1.5
Mean size of colonies				
Total	34.2 ± 2.5	32.2 ± 2.9	23.8 ± 3.1 ***	17.9 ± 1.9 ***
Calcium	20.1 ± 2.4	15.3 ± 2 ***	9.6 ± 0.9 ***	8.8 ± 0.8 ***
Collagen	15.9 ± 2.3	13.4 ± 2.1 *	12.9 ± 0.8 **	10.5 ± 1.2 ***
Alkaline Phosphatase	15.8 ± 3.3	12.5 ± 1.7 *	11.1 ± 0.6 **	10.8 ± 2.4 ***
Oil Red O	24.6 ± 3	23.9 ± 4.1	23.7 ± 2.4	23.3 ± 2.8
%βgal positive colonies				
0 passage	5.6 ± 0.4	4.6 ± 0.5	6.1 ± 0.6	4.3 ± 0.2
15 passage	22.4 ± 1.6	19.7 ± 2.1	18.6 ± 0.8	22.6 ± 1.3
Population doubling/ Passage	1	0.8	0.68	0.54
% β –gal positive cells/ Population doubling	1.5 ± 0.2	1.65 ± 0.4	1.8 ± 0.8	2.8 ± 0.2 ***

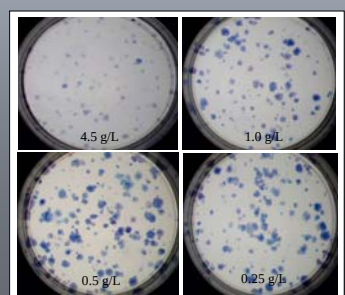
MSC do age

Quality

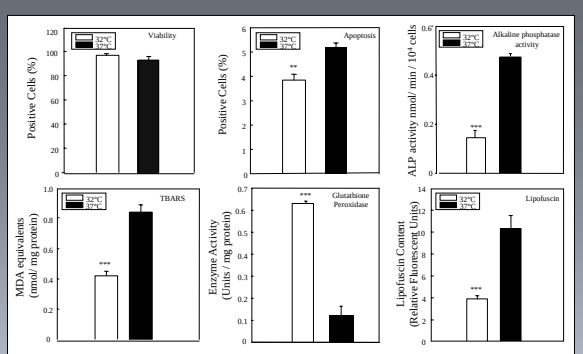


Fast Aging

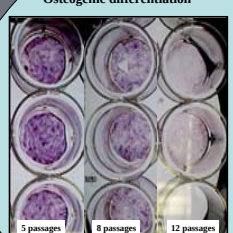
Diabetes/Sugar

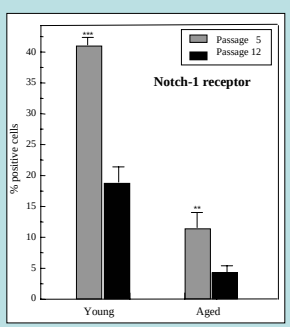


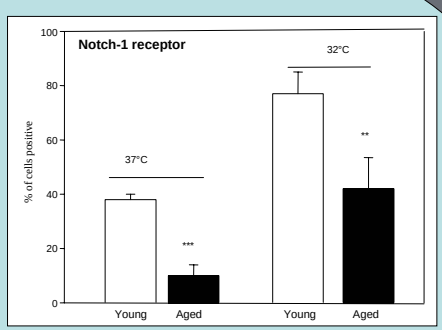
Notch-1, aging, differentiation

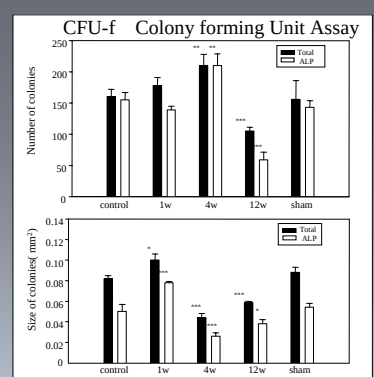


Osteogenic differentiation

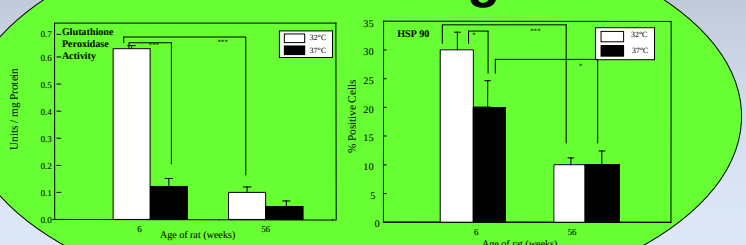




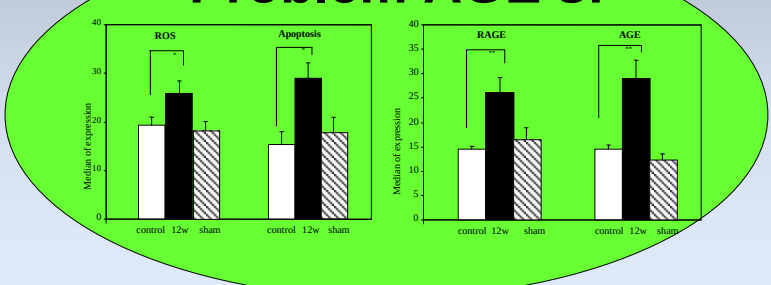




Problem- Age!



Problem AGE's!



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