Anti-inflammatory properties of carbosilane dendrimers

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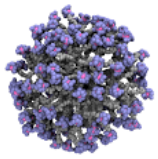

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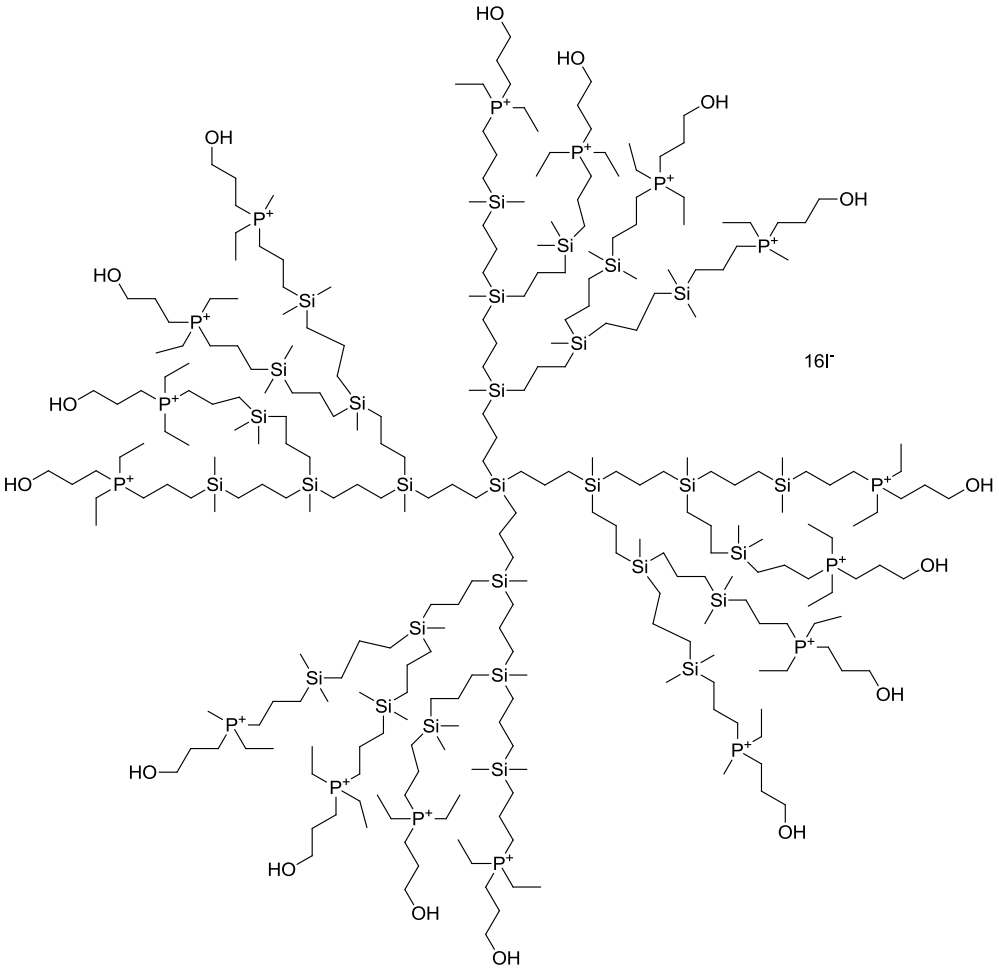
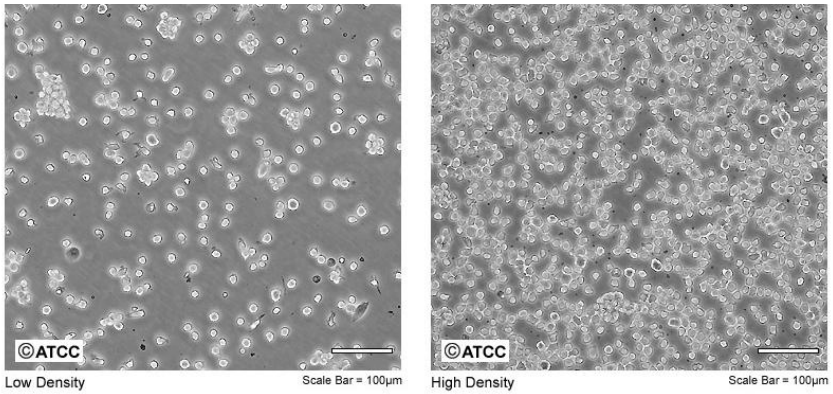
dendrimers

NMe_3, PMe_3, $P(Et_2)_2(CH_2)_3$-OH, PBu_3, $P(C_6H_4\text{-}OMe)_3$, $P(Ph)_3$

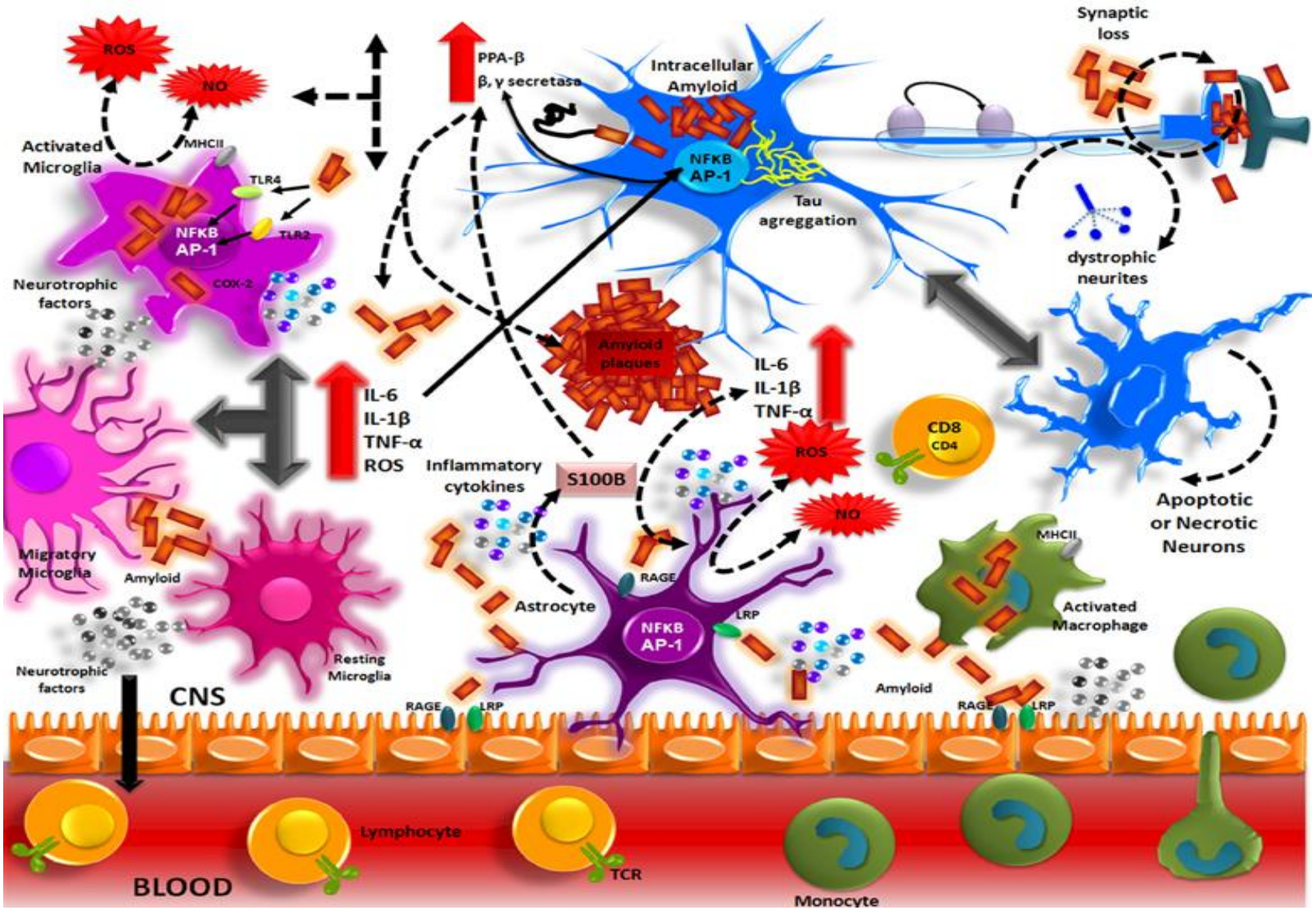


THP1 cell line

monocyte isolated from peripheral blood



The aim of work



Reverse **T**ranscription **P**olymerase **C**hain **R**eaction (RT-PCR) test

- THP-1 cells activated by LPS and incubated with dendrimers for 3 h,
- THP-1 cells incubated with dendrimers for 3h.
- THP-1 cells activated by LPS, incubated with dendrimers for 3 h and incubated in new medium for 21h,
- THP-1 cells incubated with dendrimers for 3 h and incubated in new medium for 21h.

The changes in a activation level of four genes contributed to inflammatory response **NFKBIA, IL1** and **TNFα** were investigated as well as reference gene.

Results

			PBu_3			$P(Ph)_3$			$P(C_6H_4\text{-}OMe)_3$			NMe_3			PMe_3			$P(Et_2)_2(CH_2)_3\text{-}OH$		
		C	G1	G2	G3	G1	G2	G3	G1	G2	G3	G1	G2	G3	G1	G2	G3	G1	G2	G3
3h	TNFα	9.9	27.5	26.3	26.5	18.1	58.5	62.0	43.1	51.3	62.8	6.7	7.8	12.4	14.3	16.4	34.5	9.1	17.0	19.0
	IL1	0.7	0.8	1.1	1.6	0.1	0.6	0.8	0.1	0.3	0.4	1.6	1.1	0.5	0.2	1.8	2.2	1.6	2.3	2.3
	NFKBIA	0.1	0.7	1.6	1.8	0.5	0.5	1.5	0.6	0.4	0.3	0.1	0.1	0.2	0.4	1.3	1.2	0.2	0.2	0.3
3h LPS	TNFα	332.8	84.8	66.8	3.7	6.5	76.4	3.3	28.0	1.2	75.6	0.04	3.0	4.3	0.5	0.4	0.3	0.4	0.02	1.2
	IL1	54.2	37.3	24.6	5.4	50.0	32.6	10.8	59.3	18.1	2.5	66.8	20.6	1.3	0.7	0.7	0.02	2.5	0.7	0.5
	NFKBIA	124.9	58.4	61.8	199.6	22.2	18.8	9.0	156.2	178.4	272.4	111.1	65.9	0.4	1.0	0.6	0.3	3.1	2.4	0.4
24h	TNFα	4.4	0.6	0.5	4.5	1.5	1.5	0.5	2.3	4.5	7.1	0.8	3.6	5.5	2.0	3.0	2.2	12.5	24.4	43.8
	IL1	1.5	1.7	6.3	19.1	14.9	23.8	41.9	3.9	15.44	20.0	0.4	1.5	11.4	0.3	1.1	3.7	9.7	14.3	26.9
	NFKBIA	1.4	2.9	3.2	17.3	1.5	8.0	9.4	7.5	13.5	16.1	0.2	2.3	6.5	1.0	1.5	3.8	103.9	117.2	213.7
24h LPS	TNFα	250.0	127.8	109.8	23.4	110.8	299.9	1274.8	30.0	254.1	129.1	54.0	104.9	81.2	283.5	213.9	251.2	353.5	449.6	444.9
	IL1	70.3	111.1	25.2	0.6	90.2	100.8	499.4	24.5	13.6	0.5	5.1	0.4	0.2	39.0	21.5	178.4	57.4	326.2	512.1
	NFKBIA	264.1	341.4	658.0	587.4	507.8	1046.9	2224.4	99.2	38.1	166.9	686.4	885.8	784.8	214.5	147.7	20.8	296.6	319.0	346.2

Summary

Comparing all results the best anty-inflammatory profile was shown for phosphonium metoxyphenyl terminated carbosilane dendrimers. This effect was visible the best for cells activated with LPS and incubated for 24h.

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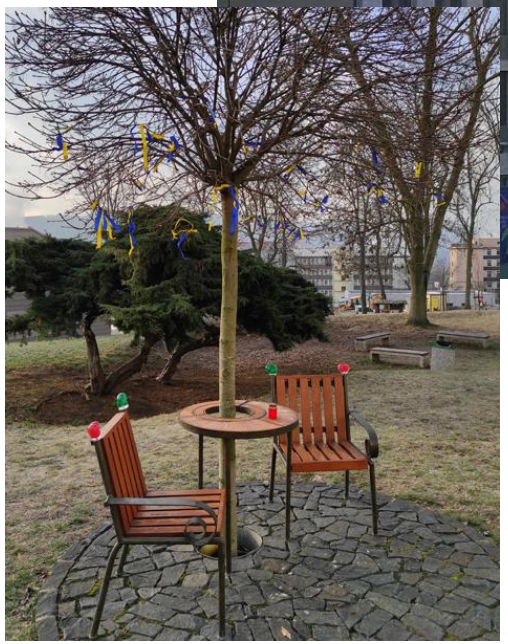
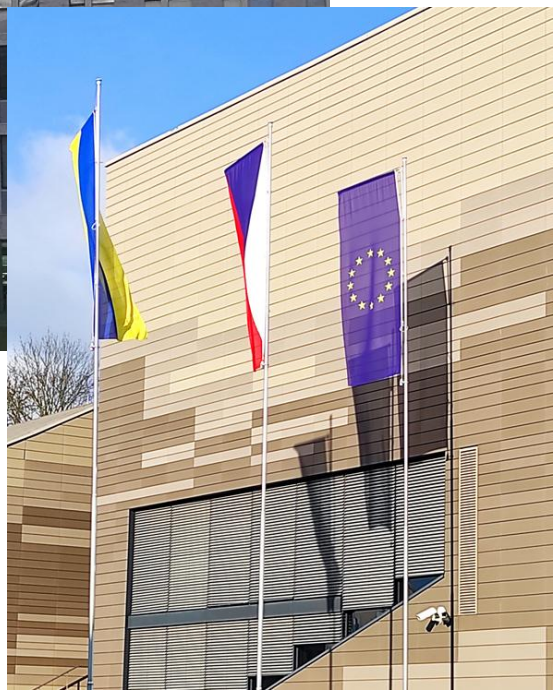
The results were obtain at the Department of General Biophysic. Łódź. Poland under Prof. Anna Janaszewska



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