

Supplementary Information

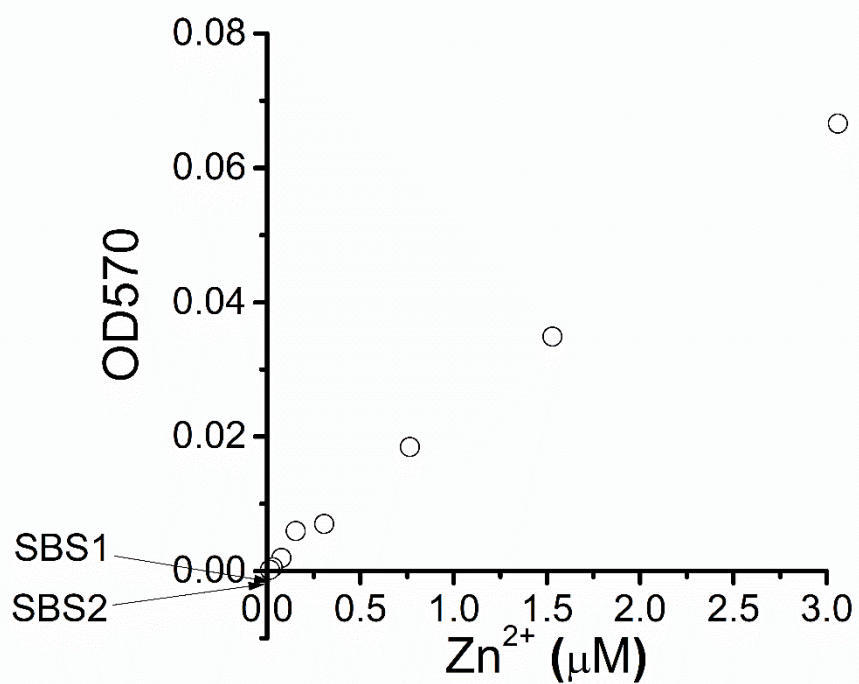
**HIF-1 α dependent upregulation of ZIP8, ZIP14, and TRPA1 modify intracellular Zn²⁺
accumulation in inflammatory synoviocytes**

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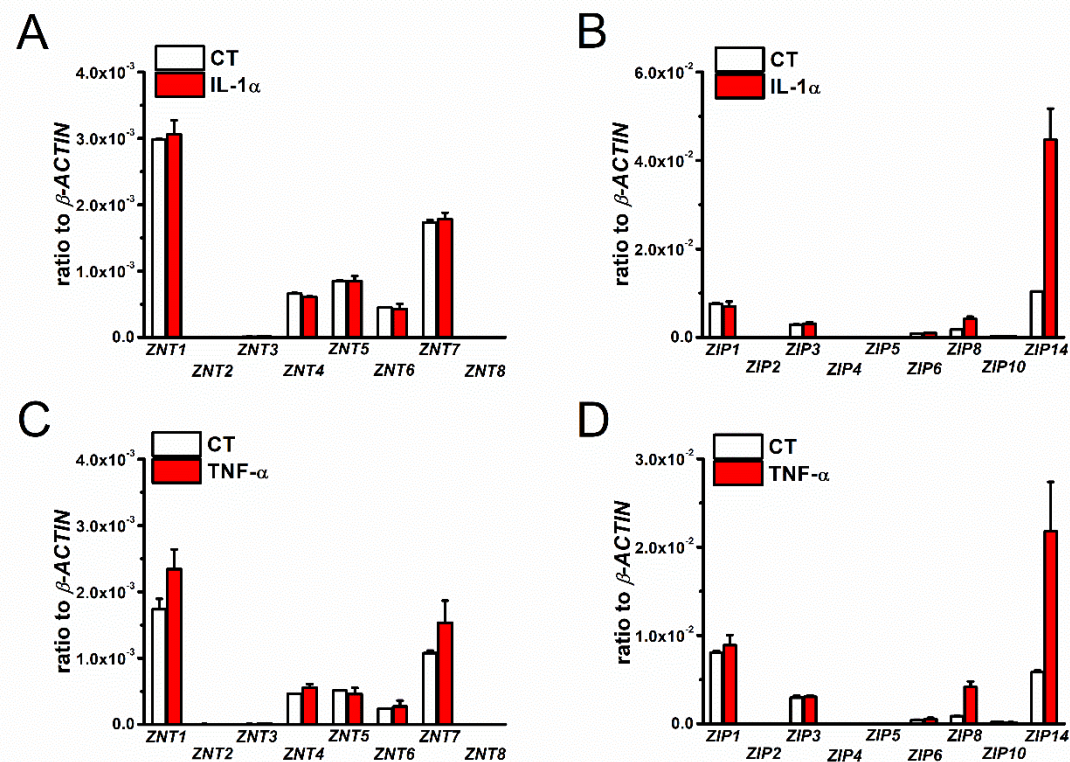
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Supplementary Fig.1

Supplementary Figure S1. Zn²⁺ concentration in the SBS. Zn²⁺ concentration was measured using a Metalloassay Kit. The absorbance at 570 nm was determined to be within 0.153 for 3 μM Zn²⁺ and this was used to determine the relationship between absorbance and Zn²⁺ concentration. Two independent SBSs were assayed, and the absorbances of SBS1 and SBS2 were -0.00115 and -0.00165, respectively.



Supplementary Fig.2

Supplementary Figure S2. Expression of membrane-associated Zn²⁺ transporters in FLSs with and without inflammation. FLSs were treated with and without (A, B) 100 U IL-1 α or (C, D) 10 U TNF- α for 24 h. The mRNA transcripts of 17 out of 24 known Zn²⁺ transporters were compared between control (CT, 2 independent experiments) and inflammatory FLSs (IL-1 α and TNF- α , 2 independent experiments).

Supplementary Table S1. Primer sets for *TRPA1*, *ZNT1-8*, *ZIP1-14*, and β -*ACTIN*

gene	GenBank accession No.	amplicon		
<i>TRPA1</i>	NM_007332	140 bp	sense	TGCATGTTGCATTCCACAGAAG
			antisense	TTGAGGGCTGTAAGCGGTCATA
<i>ZIP1</i>	NM_014437	111 bp	sense	CTCAGCTTCCCGCCAGAA
			antisense	TCATCTATGGCAGCCAGGTAGTC
<i>ZIP2</i>	NM_014579	101 bp	sense	TTTGGAGTCGCTGGCATTG
			antisense	GGCTGTGGAGTTCGAAGATATGA
<i>ZIP3</i>	NM_144564	101 bp	sense	CGTGAAGATCATCGAGACAGATTT
			antisense	AGCACGTGGCCAGAAACAC
<i>ZIP4</i>	NM_017767	113 bp	sense	CCCTGTGCCCTCATCAG
			antisense	GGGTCACCCAGCCTGTT
<i>ZIP5</i>	NM_173596	121 bp	sense	AGGAATCTCGAAACACGCAACT
			antisense	GTGGGTGCTGGCTGTTCTTC
<i>ZIP6</i>	NM_012319	111 bp	sense	TGGAATGGCAACAGGAATTTT
			antisense	GGTACCATATCAACCAGAGCAACA
<i>ZIP8</i>	NM_022154	111 bp	sense	CAAATCCTGCTGTACAGAAGCT
			antisense	GCCCCTTCAAACAGGTACATG
<i>ZIP10</i>	NM_001127257	121 bp	sense	GTCATTAGCCTGCTTTCCTTGCT
			antisense	GGGCGTCTCCACTCATTGTT
<i>ZIP14</i>	NM_001128431	111 bp	sense	CAACTGGATTTTTCGCTAGCT
			antisense	AAGATGCTGCCCTTCCTTTCA
<i>ZNT1</i>	NM_021194	121 bp	sense	TTTCTGCATGTCCTGGAGATG
			antisense	CAGGGAAACATGGATTACACA
<i>ZNT2</i>	NM_001004434	101 bp	sense	CTGCTGTCCACATCGCCATT
			antisense	GTCACGGTGTGGAAGTGGAAT
<i>ZNT3</i>	NM_003459	123 bp	sense	CCTCATCTACTTCAAGCCTCAATACA
			antisense	CCTTCCATGAGGATTCGAAGAA
<i>ZNT4</i>	NM_013309	131 bp	sense	GACCATTGCTGCCGTTCTGT
			antisense	GGGTGAGTATGATGGCGCTTA
<i>ZNT5</i>	NM_022902	121 bp	sense	GGCCTGATCTCGGATGGATT
			antisense	TTCGGCCGTACCCATAGGA
<i>ZNT6</i>	NM_001193513	111 bp	sense	TCAACCTGTTACGATGCTTTC
			antisense	ACAAGCTTCGACTAAGATCTGCAA
<i>ZNT7</i>	NM_133496	101 bp	sense	TGTTTTTCTTCTGTGCCTGAA
			antisense	CATGTGAAAAGAGTCGGAAATCAA
<i>ZNT8</i>	NM_173851	131 bp	sense	CTCCAAGCCACAGAAAAGG
			antisense	CAGCAAGACTCCCAGCAATG
β - <i>ACTIN</i>	NM_001101	112 bp	sense	ACCGAGCGCGCTACA
			antisense	CAGCCGTGGCCATCTCTT

supplementary Table1