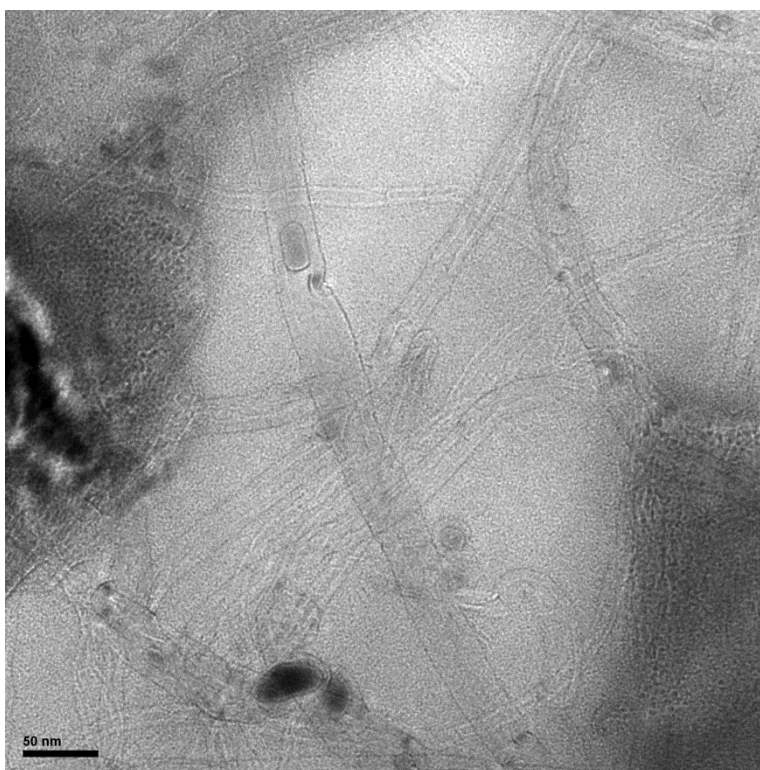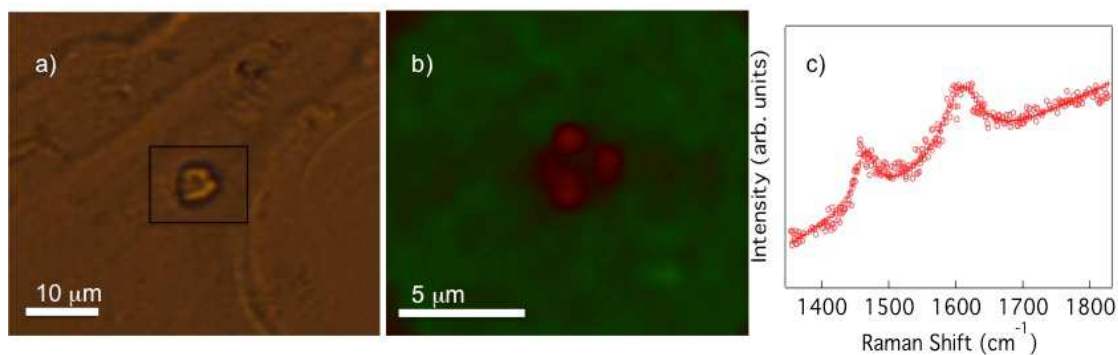**Supplementary Information**

**A Carbon Nanotube Toxicity Paradigm Driven by Mast Cells and the IL-33/ST2 Axis**

Pranita Katwa, Xiaojia Wang, Rakhee N. Urankar, Ramakrishna Podila, Susana C. Hilderbrand,

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**Supplemental Figure S1: Transmission electron microscopy (TEM) of MWCNTs.**

Supplemental Figure S2: Raman Spectroscopy of Lung Histology. a) A representative microscope image for the unstained lung sections shown in Fig. 3c. b) The Raman map for the boxed area shown in a). Mapping measurement were performed using a 514.5 nm Ar+ ion laser coupled to a Dilor XY Raman spectrometer. The red color in the map corresponds to the typical spectroscopic signature of MWNTs shown in c). Green color indicates the absence of peaks shown in c). c) A representative Raman spectrum of MWNTs, acquired from the sample shown in a), exhibits the disorder (or D-band) band at ~1450 cm^{-1} and the graphitic (or G-band) at ~1600 cm^{-1}.
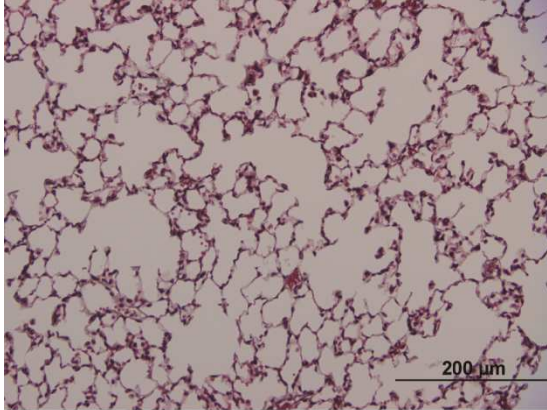
C57BL/6
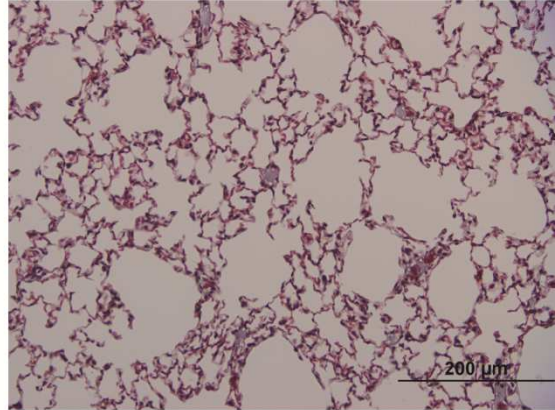
Kit[W-sh]
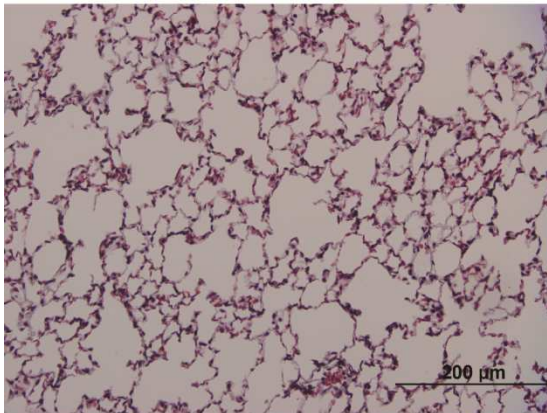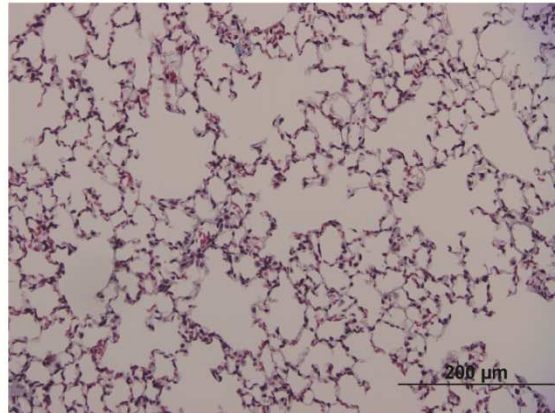

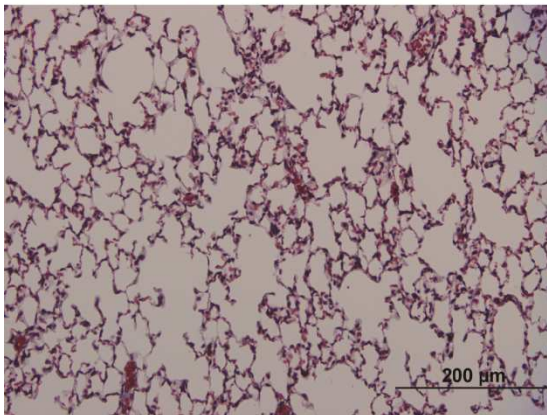*Kit*[W-sh]
+ BMMCs

Kit[W-sh]
+ ST2^{-/-} BMMCs

ST2^{-/-}

Supplemental Figure S3: Histopathology of lungs exposed to vehicle at 30 days post-exposure. Mice were instilled with vehicle control (10% saline in surfactant) and exhibit normal lung morphology 30 days following exposure. Masson's trichrome staining for collagen deposition does not display granulomatous or fibrotic tissue in any of the groups as determined by a lack of blue staining in the lung sections. Images are representative of 4 mice per group with a magnification of 200x.

Supplemental Table S1. Pulmonary cell populations in mice at 30 days following MWCNT exposure

Strain	Treatment	Macrophages (x10^3)	Neutrophils (x10^3)	Eosinophils (x10^3)	Lymphocytes (x10^3)	Total Cells (x10^3)
C57BL/6	Vehicle	114.35 ± 8.76	1.55 ± 0.79	0.50 ± 0.16	0.05 ± 0.03	136.77 ± 11.68
C57BL/6	MWCNT	283.39 ± 37.63 $^{\text{Ŧ}}$	16.06 ± 4.56**	3.25 ± 1.16**	0.65 ± 0.34	349.00 ± 42.86 $^{\text{Ŧ}}$
$Kit^{W\text{-}sh}$	Vehicle	207.91 ± 31.61	2.75 ± 2.11	0.00 ± 0.00	0.25 ± 0.25	264.75 ± 38.81
$Kit^{W\text{-}sh}$	MWCNT	370.82 ± 74.85*	51.62 ± 46.41	0.00 ± 0.00	0.00 ± 0.00	509.00 ± 109.19*
$Kit^{W\text{-}sh}$ + BMMCs	Vehicle	183.98 ± 19.93	1.59 ± 0.52	0.00 ± 0.00	2.79 ± 1.10	220.60 ± 21.31
$Kit^{W\text{-}sh}$ + BMMCs	MWCNT	189.49 ± 27.08	112.08 ± 34.45**	38.45 ± 19.04	39.94 ± 26.50*	455.20 ± 90.58*
$Kit^{W\text{-}sh}$ + ST2 $^{-/-}$BMMCs	Vehicle	150.23 ± 21.26	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	198.00 ± 29.17
$Kit^{W\text{-}sh}$ + ST2 $^{-/-}$BMMCs	MWCNT	286.30 ± 48.56*	7.54 ± 5.84	1.17 ± 0.87	0.00 ± 0.00	375.00 ± 63.26*
ST2 $^{-/-}$	Vehicle	156.73 ± 18.64	3.10 ± 2.32	0.00 ± 0.00	0.93 ± 0.93	180.83 ± 20.86
ST2 $^{-/-}$	MWCNT	186.90 ± 20.63	7.19 ± 3.54	0.35 ± 0.24	2.34 ± 1.24	219.00 ± 24.58

Values are mean ± SEM. N=6/group; *p < 0.05 vs vehicle within strain; **p < 0.01 vs vehicle within strain; ^{Ŧ}p< 0.001 vs vehicle within strain