

Experiment Number: 20407 - 01
Test Type: 90-DAY
Route: RESPIRATORY EXPOSURE NASAL
Species/Strain: RATS/Wistar Han

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL
Nanoscale material (Fullerene-C60 50 nanometers)
CAS Number: 99685-96-8

Date Report Requested: 02/05/2013
Time Report Requested: 07:56:27
First Dose M/F: 11/05/07 / 11/05/07
Lab: BNW

F2_RE

NTP Study Number: C20407
Lock Date: 02/24/2009
Cage Range: ALL
Date Range: ALL
Reasons For Removal: ALL
Removal Date Range: ALL
Treatment Groups: Include ALL
Study Gender: Both
TDMSE Version: 3.0.1.1_001
PWG Approval Date: NONE

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WISTAR HAN RATS MALE	DAY ON TEST										* TOTALS
	0	0	0	0	0	0	0	0	0	0	
0 mg/m3	9	9	9	9	9	9	9	9	9	9	
	0	0	0	0	0	0	0	0	0	0	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	1	
	1	2	3	4	5	6	7	8	9	0	

ALIMENTARY SYSTEM

Esophagus	+	+	+	+	+	+	+	+	+	+	10	
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	10	
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	10	
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	10	
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	10	
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	10	
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	10	
Liver	+	+	+	+	+	+	+	+	+	+	10	
Pancreas Acinus, Atrophy	+	+	+	+	+	+	+	+	+	1	10	1 1.0
Salivary Glands	+	+	+	+	+	+	+	+	+	+	10	
Stomach, Forestomach Hyperplasia, Squamous	+	+	+	+	+	+	+	+	+	1	10	1 1.0
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	10	

CARDIOVASCULAR SYSTEM

Blood Vessel	+	+	+	+	+	+	+	+	+	+	10	
--------------	---	---	---	---	---	---	---	---	---	---	----	--

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1-4 .. Lesion qualified as:
 1) Minimal 3) Moderate
 2) Mild 4) Marked

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 Lab: BNW

DAY ON TEST	0	0	0	0	0	0	0	0	0	0	ANIMAL ID	
	9	9	9	9	9	9	9	9	9	9		
WISTAR HAN RATS MALE	0	0	0	0	0	0	0	0	0	0		
0 mg/m3	0	0	0	0	0	0	0	0	0	0		
	0	0	0	0	0	0	0	0	0	0		
	0	0	0	0	0	0	0	0	0	0		
	0	0	0	0	0	0	0	0	0	1		
	1	2	3	4	5	6	7	8	9	0		* TOTALS

Heart	+	+	+	+	+	+	+	+	+	+	10	
Cardiomyopathy									1			1 1.0

ENDOCRINE SYSTEM

Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	10	
Accessory Adrenal Cortical Nodule	1									1		2 1.0
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	10	
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	10	
Parathyroid Gland	+	+	+	+	+	+	+	+	+	+	10	
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	10	
Cyst			1					1				2 1.0
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	10	

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

Epididymis	+	+	+	+	+	+	+	+	+	+	10	
Preputial Gland	+	+	+	+	+	+	+	+	+	+	10	
Inflammation, Chronic Active		1					1					2 1.0
Prostate	+	+	+	+	+	+	+	+	+	+	10	

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 Lab: BNW

WISTAR HAN RATS MALE 0 mg/m3	DAY ON TEST										ANIMAL ID		
	0	0	0	0	0	0	0	0	0	0			
	0	0	0	0	0	0	0	0	0	0	0		
	9	9	9	9	9	9	9	9	9	9	0		
	0	0	0	0	0	0	0	0	0	0	0		
	0	0	0	0	0	0	0	0	0	0	0		
	0	0	0	0	0	0	0	0	0	0	0		
	0	0	0	0	0	0	0	0	0	1	0		
	1	2	3	4	5	6	7	8	9	0			* TOTALS
Seminal Vesicle	+	+	+	+	+	+	+	+	+	+			10
Testes	+	+	+	+	+	+	+	+	+	+			10
HEMATOPOIETIC SYSTEM													
Bone Marrow	+	+	+	+	+	+	+	+	+	+			10
Lymph Node, Bronchial	+	+	+	+	+	+	+	+	+	+			10
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+			10
Lymph Node, Mediastinal Pigmentation	+	+	+	+	+	+	+	+	+	+	1		10 1 1.0
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+			10
Spleen	+	+	+	+	+	+	+	+	+	+			10
Thymus	+	+	+	+	+	+	+	+	+	+			10
INTEGUMENTARY SYSTEM													
Mammary Gland	M	M	M	M	M	M	M	M	M	M			0
Skin	+	+	+	M	+	+	+	+	+	+			9
MUSCULOSKELETAL SYSTEM													
Bone	+	+	+	+	+	+	+	+	+	+			10

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WISTAR HAN RATS MALE		0	0	0	0	0	0	0	0	0	0
		9	9	9	9	9	9	9	9	9	9
		0	0	0	0	0	0	0	0	0	0
	0 mg/m3										
ANIMAL ID		0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	1	0
		1	2	3	4	5	6	7	8	9	0
* TOTALS											

NERVOUS SYSTEM

Brain + + + + + + + + + + **10**

RESPIRATORY SYSTEM

Larynx + + + + + + + + + + **10**

Lung + + + + + + + + + + **10**

Infiltration Cellular, Histiocyte 1 **1 1.0**
 Metaplasia, Osseous 1 **1 1.0**

Nose + + + + + + + + + + **10**

Trachea + + + + + + + + + + **10**

SPECIAL SENSES SYSTEM

Eye + + + + + + + + + + **10**

Harderian Gland + + + + + + + + + + **10**

URINARY SYSTEM

Kidney + + + + + + + + + + **10**

Nephropathy 1 **1 1.0**

Urinary Bladder + + + + + + + + + + **10**

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WISTAR HAN RATS MALE	DAY ON TEST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.5 mg/m3	ANIMAL ID	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	1	2	3	4	5	6	7	8	9	0									
* TOTALS																			

ALIMENTARY SYSTEM

NONE

CARDIOVASCULAR SYSTEM

NONE

ENDOCRINE SYSTEM

NONE

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

Epididymis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	10
Testes	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	10

HEMATOPOIETIC SYSTEM

Lymph Node	+																		1
Lymph Node, Bronchial Pigmentation	+	+	+	I	+	+	+	+	+	+									9
					1	1				1									3 1.0
Lymph Node, Mediastinal Pigmentation	+	+	+	+	+	+	+	M	+	M									8
					1	1	1		1	1		1							6 1.0

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WISTAR HAN RATS MALE	DAY ON TEST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.5 mg/m3	ANIMAL ID	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	1	2	3	4	5	6	7	8	9	0										
* TOTALS																				

INTEGUMENTARY SYSTEM

NONE

MUSCULOSKELETAL SYSTEM

NONE

NERVOUS SYSTEM

NONE

RESPIRATORY SYSTEM

Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	10		
Infiltration Cellular, Histiocyte																						1 1.0

SPECIAL SENSES SYSTEM

NONE

URINARY SYSTEM

Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	10		
Nephropathy																						1 1.0
Pelvis, Dilatation																						2 1.0

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WISTAR HAN RATS MALE	DAY ON TEST										* TOTALS
	0	0	0	0	0	0	0	0	0	0	
2.0 mg/m3	9	9	9	9	9	9	9	9	9	9	
	0	0	0	0	0	0	0	0	0	0	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
	4	4	4	4	4	4	4	4	4	4	
	0	0	0	0	0	0	0	0	0	1	
	1	2	3	4	5	6	7	8	9	0	

ALIMENTARY SYSTEM

Esophagus	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	10
Liver	+	+	+	+	+	+	+	+	+	+	10
Pancreas	+	+	+	+	+	+	+	+	+	+	10
Salivary Glands	+	+	+	+	+	+	+	+	+	+	10
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	10
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	10

CARDIOVASCULAR SYSTEM

Blood Vessel	+	+	+	+	+	+	+	+	+	+	10
Heart	+	+	+	+	+	+	+	+	+	+	10

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DAY ON TEST	0	0	0	0	0	0	0	0	0	0	
	WISTAR HAN RATS MALE	0	0	0	0	0	0	0	0	0	0
2.0 mg/m3	9	9	9	9	9	9	9	9	9	9	
	0	0	0	0	0	0	0	0	0	0	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	4	4	4	4	4	4	4	4	4	4	
	0	0	0	0	0	0	0	0	0	1	
	1	2	3	4	5	6	7	8	9	0	
* TOTALS											
Cardiomyopathy											1 1.0

ENDOCRINE SYSTEM

Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	10	
Accessory Adrenal Cortical Nodule										1		1 1.0
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	10	
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	10	
Parathyroid Gland	M	+	+	+	+	+	+	+	+	+	9	
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	10	
Pars Distalis, Hyperplasia										1		1 1.0
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	10	

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

Epididymis	+	+	+	+	+	+	+	+	+	+	10	
Hypospermia								4	2			2 3.0
Preputial Gland	+	+	+	+	+	+	+	+	+	+	10	
Inflammation, Chronic Active	1					1						2 1.0
Prostate	+	+	+	+	+	+	+	+	+	+	10	

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		0	0	0	0	0	0	0	0	0	
DAY ON TEST		0	0	0	0	0	0	0	0	0	
WISTAR HAN RATS MALE		9	9	9	9	9	9	9	9	9	
2.0 mg/m3		0	0	0	0	0	0	0	0	0	
ANIMAL ID		4	4	4	4	4	4	4	4	4	
		0	0	0	0	0	0	0	0	1	
		1	2	3	4	5	6	7	8	9	0
* TOTALS											
Inflammation, Chronic Active					3		1		2		3 2.0
Seminal Vesicle		+	+	+	+	+	+	+	+	+	10
Testes		+	+	+	+	+	+	+	+	+	10
Germinal Epithelium, Degeneration							1	3	2		3 2.0
HEMATOPOIETIC SYSTEM											
Bone Marrow		+	+	+	+	+	+	+	+	+	10
Lymph Node, Bronchial Pigmentation		+	+	+	+	+	+	+	+	+	10
				1	1	1	1				4 1.0
Lymph Node, Mandibular		+	+	+	+	+	+	+	+	+	10
Lymph Node, Mediastinal Pigmentation		+	+	+	+	+	+	+	+	+	10
				1		1					2 1.0
Lymph Node, Mesenteric		+	+	+	+	+	+	+	+	+	10
Spleen		+	+	+	+	+	+	+	+	+	10
Thymus Hemorrhage		+	+	+	+	+	+	+	+	+	10
					2						1 2.0
INTEGUMENTARY SYSTEM											
Mammary Gland		+	M	M	M	M	M	M	M	M	1
Skin		+	+	+	+	+	+	+	+	+	10

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	9	9	9	9	9	9	9	9	9	9	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
4	4	4	4	4	4	4	4	4	4	4	
0	0	0	0	0	0	0	0	0	0	1	
1	2	3	4	5	6	7	8	9	0	0	* TOTALS

MUSCULOSKELETAL SYSTEM

Bone + + + + + + + + + + **10**

NERVOUS SYSTEM

Brain + + + + + + + + + + **10**

RESPIRATORY SYSTEM

Larynx + + + + + + + + + + **10**

Lung + + + + + + + + + + **10**
 Infiltration Cellular, Histiocyte 2 1 1 **3 1.3**
 Pigmentation 1 1 1 **3 1.0**

Nose + + + + + + + + + + **10**

Trachea + + + + + + + + + + **10**

SPECIAL SENSES SYSTEM

Eye + + + + + + + + + + **10**

Harderian Gland + + + + + + + + + + **10**
 Inflammation, Chronic Active 1 1 1 **3 1.0**

URINARY SYSTEM

Kidney + + + + + + + + + + **10**
 Infarct 1 **1 1.0**

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
 + .. Tissue examined microscopically M .. Missing tissue
 X .. Lesion present A .. Autolysis precludes evaluation
 I .. Insufficient tissue BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:
 1) Minimal 3) Moderate
 2) Mild 4) Marked

Experiment Number: 20407 - 01
 Test Type: 90-DAY
 Route: RESPIRATORY EXPOSURE NASAL
 Species/Strain: RATS/Wistar Han

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL
 Nanoscale material (Fullerene-C60 50 nanometers)
 CAS Number: 99685-96-8

Date Report Requested: 02/05/2013
 Time Report Requested: 07:56:27
 First Dose M/F: 11/05/07 / 11/05/07
 Lab: BNW

WISTAR HAN RATS MALE 2.0 mg/m3	DAY ON TEST										ANIMAL ID	
	0	0	0	0	0	0	0	0	0	0		
	0	0	0	0	0	0	0	0	0	0	0	
	9	9	9	9	9	9	9	9	9	9	9	
	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	
	4	4	4	4	4	4	4	4	4	4	4	
	0	0	0	0	0	0	0	0	0	0	1	
	1	2	3	4	5	6	7	8	9	0		
	* TOTALS											
Nephropathy	1	1		1	1		1		1			6 1.0
Bilateral, Pelvis, Dilatation											2	1 2.0
Medulla, Inflammation, Chronic Active											3	1 3.0
Urinary Bladder	+	+	+	+	+	+	+	+	+	+		10
Inflammation, Chronic Active											2	1 2.0

*** END OF MALE DATA ***

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue
 M .. Missing tissue
 A .. Autolysis precludes evaluation
 BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:
 1) Minimal 3) Moderate
 2) Mild 4) Marked

Experiment Number: 20407 - 01
 Test Type: 90-DAY
 Route: RESPIRATORY EXPOSURE NASAL
 Species/Strain: RATS/Wistar Han

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL
 Nanoscale material (Fullerene-C60 50 nanometers)
 CAS Number: 99685-96-8

Date Report Requested: 02/05/2013
 Time Report Requested: 07:56:27
 First Dose M/F: 11/05/07 / 11/05/07
 Lab: BNW

WISTAR HAN RATS FEMALE	DAY ON TEST										* TOTALS
	0	0	0	0	0	0	0	0	0	0	
0 mg/m3	9	9	9	9	9	9	9	9	9	9	
	0	0	0	0	0	0	0	0	0	0	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
	1	1	1	1	1	1	1	1	1	1	
	0	0	0	0	0	0	0	0	0	1	
	1	2	3	4	5	6	7	8	9	0	

ALIMENTARY SYSTEM

Esophagus	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	10
Liver	+	+	+	+	+	+	+	+	+	+	10
Pancreas	+	+	+	+	+	+	+	+	+	+	10
Salivary Glands	+	+	+	+	+	+	+	+	+	+	10
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	10
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	10

CARDIOVASCULAR SYSTEM

Blood Vessel	+	+	+	+	+	+	+	+	+	+	10
Heart	+	+	+	+	+	+	+	+	+	+	10

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue
 M .. Missing tissue
 A .. Autolysis precludes evaluation
 BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:
 1) Minimal 3) Moderate
 2) Mild 4) Marked

Experiment Number: 20407 - 01
 Test Type: 90-DAY
 Route: RESPIRATORY EXPOSURE NASAL
 Species/Strain: RATS/Wistar Han

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL
 Nanoscale material (Fullerene-C60 50 nanometers)
 CAS Number: 99685-96-8

Date Report Requested: 02/05/2013
 Time Report Requested: 07:56:27
 First Dose M/F: 11/05/07 / 11/05/07
 Lab: BNW

DAY ON TEST	0	0	0	0	0	0	0	0	0	0	ANIMAL ID		
	9	9	9	9	9	9	9	9	9	9			
WISTAR HAN RATS FEMALE	0	0	0	0	0	0	0	0	0	0			
0 mg/m3	0	0	0	0	0	0	0	0	0	0			
	1	1	1	1	1	1	1	1	1	1			
	0	0	0	0	0	0	0	0	0	1			
	1	2	3	4	5	6	7	8	9	0			* TOTALS
Cardiomyopathy											1	1 1.0	

ENDOCRINE SYSTEM

Adrenal Cortex	+	+	+	+	+	+	+	+	+	+		10	
Accessory Adrenal Cortical Nodule						1				1		2 1.0	
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+		10	
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+		10	
Parathyroid Gland	M	+	+	M	+	+	M	M	+	+		6	
Pituitary Gland	+	+	+	+	+	+	+	+	+	+		10	
Thyroid Gland	+	+	+	+	+	+	+	+	+	+		10	

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

Clitoral Gland	+	+	+	+	+	+	+	+	+	+		10	
Inflammation, Chronic Active	1		1	1			1					4 1.0	
Ovary	+	+	+	+	+	+	+	+	+	+		10	
Uterus	+	+	+	+	+	+	+	+	+	+		10	

HEMATOPOIETIC SYSTEM

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue
 M .. Missing tissue
 A .. Autolysis precludes evaluation
 BLANK .. Not examined microscopically
 1-4 .. Lesion qualified as:
 1) Minimal 3) Moderate
 2) Mild 4) Marked

Experiment Number: 20407 - 01
 Test Type: 90-DAY
 Route: RESPIRATORY EXPOSURE NASAL
 Species/Strain: RATS/Wistar Han

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL
 Nanoscale material (Fullerene-C60 50 nanometers)
 CAS Number: 99685-96-8

Date Report Requested: 02/05/2013
 Time Report Requested: 07:56:27
 First Dose M/F: 11/05/07 / 11/05/07
 Lab: BNW

WISTAR HAN RATS FEMALE 0 mg/m3	DAY ON TEST										ANIMAL ID			
	0	0	0	0	0	0	0	0	0	0				
	0	0	0	0	0	0	0	0	0	0	0			
	9	9	9	9	9	9	9	9	9	9	0			
	0	0	0	0	0	0	0	0	0	0	1			
	0	0	0	0	0	0	0	0	0	0	1			
	1	1	1	1	1	1	1	1	1	1	0			
	0	0	0	0	0	0	0	0	0	1	1			
	1	2	3	4	5	6	7	8	9	0				* TOTALS
Bone Marrow	+	+	+	+	+	+	+	+	+	+				10
Lymph Node, Bronchial	+	+	+	+	+	+	+	+	+	+				10
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+				10
Lymph Node, Mediastinal	+	+	+	+	+	+	+	+	I	M				8
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+				10
Spleen	+	+	+	+	+	+	+	+	+	+				10
Thymus	+	+	+	+	+	+	+	+	+	+				10
INTEGUMENTARY SYSTEM														
Mammary Gland	+	+	+	+	+	+	+	+	+	+				10
Skin	+	+	+	+	+	+	+	+	+	+				10
MUSCULOSKELETAL SYSTEM														
Bone	+	+	+	+	+	+	+	+	+	+				10
NERVOUS SYSTEM														
Brain	+	+	+	+	+	+	+	+	+	+				10
RESPIRATORY SYSTEM														
Larynx	+	+	+	+	+	+	+	+	+	+				10

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue
 M .. Missing tissue
 A .. Autolysis precludes evaluation
 BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:
 1) Minimal 3) Moderate
 2) Mild 4) Marked

Experiment Number: 20407 - 01
 Test Type: 90-DAY
 Route: RESPIRATORY EXPOSURE NASAL
 Species/Strain: RATS/Wistar Han

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL
 Nanoscale material (Fullerene-C60 50 nanometers)
 CAS Number: 99685-96-8

Date Report Requested: 02/05/2013
 Time Report Requested: 07:56:27
 First Dose M/F: 11/05/07 / 11/05/07
 Lab: BNW

WISTAR HAN RATS FEMALE	DAY ON TEST										ANIMAL ID				
	0	0	0	0	0	0	0	0	0	0					
0 mg/m3	0	0	0	0	0	0	0	0	0	0	0				
	9	9	9	9	9	9	9	9	9	9	0				
	0	0	0	0	0	0	0	0	0	0	1				
	0	0	0	0	0	0	0	0	0	0	1				
	1	1	1	1	1	1	1	1	1	1	0				
	0	0	0	0	0	0	0	0	0	1	1				
	1	2	3	4	5	6	7	8	9	0					
															* TOTALS
Lung	+	+	+	+	+	+	+	+	+	+					10
Infiltration Cellular, Histiocyte											1				2 1.0
Metaplasia, Osseous											1		1		2 1.0
Nose	+	+	+	+	+	+	+	+	+	+					10
Trachea	+	+	+	+	+	+	+	+	+	+					10
SPECIAL SENSES SYSTEM															
Eye	+	+	+	+	+	+	+	+	+	+					10
Harderian Gland	+	+	+	+	+	+	+	+	+	+					10
Inflammation, Chronic Active											1		1		2 1.0
URINARY SYSTEM															
Kidney	+	+	+	+	+	+	+	+	+	+					10
Nephropathy											1			1	2 1.0
Urinary Bladder	+	+	+	+	+	+	+	+	+	+					10

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue
 M .. Missing tissue
 A .. Autolysis precludes evaluation
 BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:
 1) Minimal 3) Moderate
 2) Mild 4) Marked

Experiment Number: 20407 - 01
 Test Type: 90-DAY
 Route: RESPIRATORY EXPOSURE NASAL
 Species/Strain: RATS/Wistar Han

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL
 Nanoscale material (Fullerene-C60 50 nanometers)
 CAS Number: 99685-96-8

Date Report Requested: 02/05/2013
 Time Report Requested: 07:56:27
 First Dose M/F: 11/05/07 / 11/05/07
 Lab: BNW

DAY ON TEST	0	0	0	0	0	0	0	0	0	0	ANIMAL ID
	0	0	0	0	0	0	0	0	0	0	
9	9	9	9	9	9	9	9	9	9	9	
0	0	0	0	0	0	0	0	0	0	0	
<hr/>											
0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	
3	3	3	3	3	3	3	3	3	3	3	
0	0	0	0	0	0	0	0	0	0	1	
1	2	3	4	5	6	7	8	9	0	0	
											* TOTALS

ALIMENTARY SYSTEM

NONE

CARDIOVASCULAR SYSTEM

NONE

ENDOCRINE SYSTEM

NONE

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

NONE

HEMATOPOIETIC SYSTEM

Lymph Node, Bronchial Pigmentation	+	+	+	+	+	+	+	+	+	+			10	1	1.0
Lymph Node, Mediastinal Pigmentation	M	+	+	+	+	+	+	+	+	I			8	7	1.0
		1	1	1	1	1	1	1							

INTEGUMENTARY SYSTEM

NONE

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue
 M .. Missing tissue
 A .. Autolysis precludes evaluation
 BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:
 1) Minimal 3) Moderate
 2) Mild 4) Marked

Experiment Number: 20407 - 01
 Test Type: 90-DAY
 Route: RESPIRATORY EXPOSURE NASAL
 Species/Strain: RATS/Wistar Han

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL
 Nanoscale material (Fullerene-C60 50 nanometers)
 CAS Number: 99685-96-8

Date Report Requested: 02/05/2013
 Time Report Requested: 07:56:27
 First Dose M/F: 11/05/07 / 11/05/07
 Lab: BNW

WISTAR HAN RATS FEMALE	DAY ON TEST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.5 mg/m3																			
	ANIMAL ID	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
		1	2	3	4	5	6	7	8	9	0									
* TOTALS																				

MUSCULOSKELETAL SYSTEM

NONE

NERVOUS SYSTEM

NONE

RESPIRATORY SYSTEM

Lung	+	+	+	+	+	+	+	+	+	+	+									10		
Infiltration Cellular, Histiocyte											1											1 1.0
Metaplasia, Osseous											1											1 1.0

SPECIAL SENSES SYSTEM

NONE

URINARY SYSTEM

Kidney	+	+	+	+	+	+	+	+	+	+	+											10
Nephropathy												1										3 1.0

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue
 M .. Missing tissue
 A .. Autolysis precludes evaluation
 BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:
 1) Minimal 3) Moderate
 2) Mild 4) Marked

Experiment Number: 20407 - 01
 Test Type: 90-DAY
 Route: RESPIRATORY EXPOSURE NASAL
 Species/Strain: RATS/Wistar Han

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL
 Nanoscale material (Fullerene-C60 50 nanometers)
 CAS Number: 99685-96-8

Date Report Requested: 02/05/2013
 Time Report Requested: 07:56:27
 First Dose M/F: 11/05/07 / 11/05/07
 Lab: BNW

WISTAR HAN RATS FEMALE	DAY ON TEST										* TOTALS
	0	0	0	0	0	0	0	0	0	0	
2.0 mg/m3	9	9	9	9	9	9	9	9	9	9	
	0	0	0	0	0	0	0	0	0	0	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
	5	5	5	5	5	5	5	5	5	5	
	0	0	0	0	0	0	0	0	0	1	
	1	2	3	4	5	6	7	8	9	0	

ALIMENTARY SYSTEM

Esophagus	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	10
Liver	+	+	+	+	+	+	+	+	+	+	10
Pancreas	+	+	+	+	+	+	+	+	+	+	10
Salivary Glands	+	+	+	+	+	+	+	+	+	+	10
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	10
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	10

CARDIOVASCULAR SYSTEM

Blood Vessel	+	+	+	+	+	+	+	+	+	+	10
Heart	+	+	+	+	+	+	+	+	+	+	10

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue
 M .. Missing tissue
 A .. Autolysis precludes evaluation
 BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:
 1) Minimal 3) Moderate
 2) Mild 4) Marked

Experiment Number: 20407 - 01
 Test Type: 90-DAY
 Route: RESPIRATORY EXPOSURE NASAL
 Species/Strain: RATS/Wistar Han

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL
 Nanoscale material (Fullerene-C60 50 nanometers)
 CAS Number: 99685-96-8

Date Report Requested: 02/05/2013
 Time Report Requested: 07:56:27
 First Dose M/F: 11/05/07 / 11/05/07
 Lab: BNW

DAY ON TEST		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WISTAR HAN RATS FEMALE		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2.0 mg/m3																			
ANIMAL ID		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
		1	2	3	4	5	6	7	8	9	0									
* TOTALS																				

ENDOCRINE SYSTEM

Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	10		
Accessory Adrenal Cortical Nodule				1		1															2	1.0
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	10		
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	10		
Parathyroid Gland	+	+	+	+	M	M	M	+	M	+										6		
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	10		
Pars Distalis, Hyperplasia				1																	1	1.0
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	10		

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

Clitoral Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	10		
Inflammation, Chronic Active				1		1		1		1											4	1.0
Ovary	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	10		
Bilateral, Cyst				1																	1	1.0
Uterus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	10		

HEMATOPOIETIC SYSTEM

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue
 M .. Missing tissue
 A .. Autolysis precludes evaluation
 BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:
 1) Minimal 3) Moderate
 2) Mild 4) Marked

Experiment Number: 20407 - 01
 Test Type: 90-DAY
 Route: RESPIRATORY EXPOSURE NASAL
 Species/Strain: RATS/Wistar Han

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL
 Nanoscale material (Fullerene-C60 50 nanometers)
 CAS Number: 99685-96-8

Date Report Requested: 02/05/2013
 Time Report Requested: 07:56:27
 First Dose M/F: 11/05/07 / 11/05/07
 Lab: BNW

WISTAR HAN RATS FEMALE	DAY ON TEST										* TOTALS	
	0 9 0	0 9 0	0 9 0	0 9 0	0 9 0	0 9 0	0 9 0	0 9 0	0 9 0	0 9 0		
2.0 mg/m3	ANIMAL ID											
	0 5 0 1	0 5 0 2	0 5 0 3	0 5 0 4	0 5 0 5	0 5 0 6	0 5 0 7	0 5 0 8	0 5 0 9	0 5 0 0		
Bone Marrow	+	+	+	+	+	+	+	+	+	+	10	
Lymph Node, Bronchial Pigmentation	+	+	+	+	+	+	+	+	+	+	10	5 1.2
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	10	
Lymph Node, Mediastinal Pigmentation	+	+	+	+	+	+	+	+	+	+	10	9 1.3
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	10	
Spleen	+	+	+	+	+	+	+	+	+	+	10	
Thymus Cyst	+	+	+	+	+	+	+	+	+	+	10	1 1.0
INTEGUMENTARY SYSTEM												
Mammary Gland	+	+	+	+	+	+	+	+	+	+	10	
Skin	+	+	+	+	+	+	+	+	+	+	10	
MUSCULOSKELETAL SYSTEM												
Bone	+	+	+	+	+	+	+	+	+	+	10	
NERVOUS SYSTEM												
Brain	+	+	+	+	+	+	+	+	+	+	10	

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue
 M .. Missing tissue
 A .. Autolysis precludes evaluation
 BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:
 1) Minimal 3) Moderate
 2) Mild 4) Marked

Experiment Number: 20407 - 01
 Test Type: 90-DAY
 Route: RESPIRATORY EXPOSURE NASAL
 Species/Strain: RATS/Wistar Han

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL
 Nanoscale material (Fullerene-C60 50 nanometers)
 CAS Number: 99685-96-8

Date Report Requested: 02/05/2013
 Time Report Requested: 07:56:27
 First Dose M/F: 11/05/07 / 11/05/07
 Lab: BNW

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	WISTAR HAN RATS FEMALE	0	0	0	0	0	0	0	0	0
2.0 mg/m3	9	9	9	9	9	9	9	9	9	9
	0	0	0	0	0	0	0	0	0	0
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	5	5	5	5	5	5	5	5	5	5
	0	0	0	0	0	0	0	0	0	1
	1	2	3	4	5	6	7	8	9	0
* TOTALS										

RESPIRATORY SYSTEM

Larynx	+	+	+	+	+	+	+	+	+	+	10
Lung	+	+	+	+	+	+	+	+	+	+	10
Infiltration Cellular, Histiocyte	1	1	1	1	1	1		1			8 1.0
Pigmentation	3	2	2	1	2	2		2			8 2.0
Nose	+	+	+	+	+	+	+	+	+	+	10
Trachea	+	+	+	+	+	+	+	+	+	+	10

SPECIAL SENSES SYSTEM

Eye	+	+	+	+	+	+	+	+	+	+	10
Harderian Gland	+	+	+	+	+	+	+	+	+	+	10

URINARY SYSTEM

Kidney	+	+	+	+	+	+	+	+	+	+	10
Nephropathy	1							1			2 1.0
Pelvis, Dilatation			1								1 1.0
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	10

*** END OF REPORT ***

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