

Experiment Number: R92025B
Test Type: RACB
Route: Dosing in Feed
Species/Strain: Rat/Sprague-Dawley

PA02R: Neoplastic Lesion Summary with Percent and Litter Incidence
Test Compound: 4-Methylimidazole
CAS Number: 822-36-6

Date Report Requested: 08/23/2018
Time Report Requested: 14:02:46
Lab: RTI

C Number:

R92025B

Study Gender:

Both

PWG Approval Date

See web page for date of PWG Approval

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| | F0 Male | | | |
|---|------------------------|-----|------|------|
| | Treatment Groups (ppm) | | | |
| | 0 | 750 | 2500 | 5000 |
| Disposition Summary | | | | |
| Animals Initially In Study | 23 | 23 | 23 | 23 |
| Scheduled Sacrifice | | | | |
| Early Deaths | | | | |
| Unscheduled Sacrifice | | | 3 | 2 |
| Survivors | | | | |
| Scheduled sacrifice, terminal (SD 15 - 178) | 23 | 23 | 20 | 21 |
| Animals Examined Microscopically | 23 | 23 | 23 | 23 |
| ALIMENTARY SYSTEM | | | | |
| LIVER | (23) | (0) | (23) | (23) |
| CARDIOVASCULAR SYSTEM | | | | |
| No Tissues/Organs Examined | | | | |
| ENDOCRINE SYSTEM | | | | |
| ADRENAL GLANDS | (23) | (0) | (23) | (23) |
| PITUITARY GLAND | (23) | (0) | (23) | (23) |
| THYROID GLANDS | (23) | (0) | (23) | (23) |
| GENERAL BODY SYSTEM | | | | |
| No Tissues/Organs Examined | | | | |

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| | F0 Male | | | |
|---|------------------------|------|------|------|
| | Treatment Groups (ppm) | | | |
| | 0 | 750 | 2500 | 5000 |
| <hr/> | | | | |
| GENITAL SYSTEM | | | | |
| COAGULATING GLANDS | (23) | (0) | (23) | (23) |
| COWPERS GLANDS | (23) | (0) | (20) | (21) |
| EPIDIDYMIS | (22) | (23) | (23) | (23) |
| LEVATOR ANI PLUS BULBOCAVERNOSUS MUSCLE | (23) | (0) | (20) | (21) |
| PREPUTIAL GLANDS | (9) | (6) | (1) | (4) |
| PROSTATE | (23) | (23) | (23) | (23) |
| SEMINAL VESICLES | (23) | (0) | (23) | (23) |
| TESTIS | (22) | (23) | (23) | (23) |
| <hr/> | | | | |
| HEMATOPOIETIC SYSTEM | | | | |
| THYMUS | (23) | (0) | (23) | (23) |
| <hr/> | | | | |
| INTEGUMENTARY SYSTEM | | | | |
| No Tissues/Organs Examined | | | | |
| <hr/> | | | | |
| LYMPHOID SYSTEM | | | | |
| No Tissues/Organs Examined | | | | |
| <hr/> | | | | |
| MUSCULOSKELETAL SYSTEM | | | | |
| No Tissues/Organs Examined | | | | |
| <hr/> | | | | |
| NERVOUS SYSTEM | | | | |
| No Tissues/Organs Examined | | | | |
| <hr/> | | | | |
| RESPIRATORY SYSTEM | | | | |
| No Tissues/Organs Examined | | | | |
| <hr/> | | | | |
| SPECIAL SENSES SYSTEM | | | | |
| No Tissues/Organs Examined | | | | |

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| | F0 Male | | | |
|---------------------|-------------------------------|------------|-------------|-------------|
| | Treatment Groups (ppm) | | | |
| | 0 | 750 | 2500 | 5000 |
| URINARY SYSTEM | | | | |
| KIDNEYS | (23) | (0) | (23) | (23) |
| No Systemic Lesions | | | | |

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| Tumor Summary Data for F0 Male | Treatment Groups (ppm) | | | |
|---|------------------------|-----|------|------|
| | 0 | 750 | 2500 | 5000 |
| Total Animals with Primary Neoplasms | 0 | 0 | 0 | 0 |
| Total Primary Neoplasms | 0 | 0 | 0 | 0 |
| Total Animals with Benign Neoplasms | 0 | 0 | 0 | 0 |
| Total Benign Neoplasms | 0 | 0 | 0 | 0 |
| Total Animals with Malignant Neoplasms | 0 | 0 | 0 | 0 |
| Total Malignant Neoplasms | 0 | 0 | 0 | 0 |
| Total Animals with Metastatic Neoplasms | 0 | 0 | 0 | 0 |
| Total Metastatic Neoplasms | 0 | 0 | 0 | 0 |
| Total Animals with Malignant Neoplasms Uncertain Primary Site | 0 | 0 | 0 | 0 |

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Lab: RTI

| | F0 Female | | | |
|---|------------------------|-----|--------|------|
| | Treatment Groups (ppm) | | | |
| | 0 | 750 | 2500 | 5000 |
| Disposition Summary | | | | |
| Animals Initially In Study | 23 | 23 | 23 | 23 |
| Scheduled Sacrifice | | | | |
| Early Deaths | | | | |
| Euthanized, moribund | 1 | 1 | 3 | 8 |
| Found Dead | | | 1 | 1 |
| Unscheduled Sacrifice | | | | 2 |
| Survivors | | | | |
| Scheduled sacrifice, terminal (LD 4, SD 28 - 220) | 22 | 22 | 19 | 12 |
| Animals Examined Microscopically | 23 | 10 | 23 | 23 |
| ALIMENTARY SYSTEM | | | | |
| LIVER | (23) | (3) | (23) | (23) |
| CARDIOVASCULAR SYSTEM | | | | |
| No Tissues/Organs Examined | | | | |
| ENDOCRINE SYSTEM | | | | |
| ADRENAL GLANDS | (23) | (1) | (23) | (23) |
| PITUITARY GLAND | (23) | (1) | (23) | (23) |
| THYROID GLANDS | (23) | (1) | (23) | (23) |
| C-CELL ADENOMA | | | 1 (4%) | |
| GENERAL BODY SYSTEM | | | | |
| WHOLE BODY | (0) | (0) | (0) | (1) |

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Lab: RTI

| F0 Female | | | | |
|-----------------------------------|------------------------|----------|------|------|
| | Treatment Groups (ppm) | | | |
| | 0 | 750 | 2500 | 5000 |
| GENITAL SYSTEM | | | | |
| CERVIX | (23) | (1) | (23) | (21) |
| CLITORAL GLANDS | (3) | (4) | (1) | (1) |
| OVARIES | (23) | (1) | (23) | (23) |
| PLACENTA | (0) | (0) | (1) | (5) |
| UTERUS | (23) | (3) | (23) | (23) |
| HORN; ENDOMETRIUM; POLYP; STROMAL | | 1 (33%) | | |
| VAGINA | (23) | (1) | (23) | (23) |
| HEMATOPOIETIC SYSTEM | | | | |
| LYMPH NODE, MEDIASTINAL | (3) | (0) | (0) | (0) |
| THYMUS | (23) | (1) | (22) | (23) |
| INTEGUMENTARY SYSTEM | | | | |
| MAMMARY GLANDS | (1) | (2) | (0) | (0) |
| FIBROADENOMA | | 2 (100%) | | |
| SKIN | (2) | (0) | (1) | (0) |
| LYMPHOID SYSTEM | | | | |
| No Tissues/Organs Examined | | | | |
| MUSCULOSKELETAL SYSTEM | | | | |
| BONE | (1) | (0) | (0) | (0) |
| LIMB | (2) | (1) | (2) | (0) |
| NERVOUS SYSTEM | | | | |
| BRAIN | (0) | (0) | (0) | (2) |
| RESPIRATORY SYSTEM | | | | |
| NOSE | (0) | (0) | (1) | (0) |
| SPECIAL SENSES SYSTEM | | | | |
| No Tissues/Organs Examined | | | | |

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Lab: RTI

| | F0 Female | | | |
|---------------------|-------------------------------|------------|-------------|-------------|
| | Treatment Groups (ppm) | | | |
| | 0 | 750 | 2500 | 5000 |
| URINARY SYSTEM | | | | |
| KIDNEYS | (23) | (1) | (23) | (23) |
| No Systemic Lesions | | | | |

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Species/Strain: Rat/Sprague-Dawley

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Time Report Requested: 14:02:46
Lab: RTI

| Tumor Summary Data for F0 Female | Treatment Groups (ppm) | | | |
|---|------------------------|-----|------|------|
| | 0 | 750 | 2500 | 5000 |
| Total Animals with Primary Neoplasms | 0 | 0 | 0 | 0 |
| Total Primary Neoplasms | 0 | 0 | 0 | 0 |
| Total Animals with Benign Neoplasms | 0 | 3 | 1 | 0 |
| Total Benign Neoplasms | 0 | 3 | 1 | 0 |
| Total Animals with Malignant Neoplasms | 0 | 1 | 1 | 0 |
| Total Malignant Neoplasms | 0 | 1 | 1 | 0 |
| Total Animals with Metastatic Neoplasms | 0 | 0 | 0 | 0 |
| Total Metastatic Neoplasms | 0 | 0 | 0 | 0 |
| Total Animals with Malignant Neoplasms Uncertain Primary Site | 0 | 0 | 0 | 0 |

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Route: Dosing in Feed
Species/Strain: Rat/Sprague-Dawley

PA02R: Neoplastic Lesion Summary with Percent and Litter Incidence
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CAS Number: 822-36-6

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Lab: RTI

F1 Male: F1 NonParental Male

| | Treatment Groups (ppm) | | |
|--|------------------------|------|------|
| | 0 | 750 | 2500 |
| Disposition Summary | | | |
| Animals Initially In Study | 49 | 56 | 20 |
| Scheduled Sacrifice | | | |
| Early Deaths | | | |
| Survivors | | | |
| Scheduled sacrifice, terminal (PND 91 - 93) | 49 | 56 | 20 |
| Animals Examined Microscopically | 49 | 56 | 20 |
| Total number litters | 18 | 22 | 8 |
| ALIMENTARY SYSTEM | | | |
| LIVER | (49) | (1) | (20) |
| CARDIOVASCULAR SYSTEM | | | |
| No Tissues/Organs Examined | | | |
| ENDOCRINE SYSTEM | | | |
| ADRENAL GLANDS | (49) | (1) | (20) |
| PITUITARY GLAND | (49) | (0) | (20) |
| THYROID GLANDS | (49) | (0) | (20) |
| GENERAL BODY SYSTEM | | | |
| No Tissues/Organs Examined | | | |
| GENITAL SYSTEM | | | |
| COAGULATING GLANDS | (49) | (0) | (20) |
| COWPERS GLANDS | (48) | (3) | (20) |
| EPIDIDYMIS | (49) | (56) | (20) |
| LEVATOR ANI PLUS BULBOCAVERNOSUS MUSCLE | (49) | (0) | (20) |
| PROSTATE | (49) | (56) | (20) |
| SEMINAL VESICLES | (49) | (1) | (20) |
| TESTIS | (49) | (56) | (20) |

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Lab: RTI

F1 Male: F1 NonParental Male

| | Treatment Groups (ppm) | | |
|----------------------------|------------------------|-----|------|
| | 0 | 750 | 2500 |
| HEMATOPOIETIC SYSTEM | | | |
| THYMUS | (49) | (0) | (20) |
| INTEGUMENTARY SYSTEM | | | |
| SKIN | (1) | (1) | (1) |
| LYMPHOID SYSTEM | | | |
| No Tissues/Organs Examined | | | |
| MUSCULOSKELETAL SYSTEM | | | |
| LIMB | (5) | (1) | (0) |
| NERVOUS SYSTEM | | | |
| No Tissues/Organs Examined | | | |
| RESPIRATORY SYSTEM | | | |
| LUNGS | (1) | (1) | (0) |
| SPECIAL SENSES SYSTEM | | | |
| No Tissues/Organs Examined | | | |
| URINARY SYSTEM | | | |
| KIDNEYS | (49) | (1) | (20) |
| No Systemic Lesions | | | |

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Tumor Summary Data for F1 Male F1 NonParental Male

| | Treatment Groups (ppm) | | |
|--|-------------------------------|------------|-------------|
| | 0 | 750 | 2500 |
| Total Animals with Primary Neoplasms | 0 | 0 | 0 |
| Total Primary Neoplasms | 0 | 0 | 0 |
| Total Animals with Benign Neoplasms | 0 | 0 | 0 |
| Total Benign Neoplasms | 0 | 0 | 0 |
| Total Animals with Malignant Neoplasms | 0 | 0 | 0 |
| Total Malignant Neoplasms | 0 | 0 | 0 |
| Total Animals with Metastatic Neoplasms | 0 | 0 | 0 |
| Total Metastatic Neoplasms | 0 | 0 | 0 |
| Total Animals with Malignant Neoplasms Uncertain Primary Site | 0 | 0 | 0 |

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Route: Dosing in Feed
Species/Strain: Rat/Sprague-Dawley

PA02R: Neoplastic Lesion Summary with Percent and Litter Incidence
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Lab: RTI

F1 Female: F1 NonParent Female

| | Treatment Groups (ppm) | | |
|---|------------------------|-------------|------|
| | 0 | 750 | 2500 |
| Disposition Summary | | | |
| Animals Initially In Study | 47 | 58 | 27 |
| Scheduled Sacrifice | | | |
| Early Deaths | | | |
| Survivors | | | |
| Scheduled sacrifice, terminal (PND 91 - 93) | 47 | 58 | 27 |
| Animals Examined Microscopically | 47 | 58 | 27 |
| Total number litters | 17 | 22 | 12 |
| ALIMENTARY SYSTEM | | | |
| LIVER | (47) | (2) | (27) |
| NOT OTHERWISE SPECIFIED; SARCOMA | | 1 (50%) [1] | |
| CARDIOVASCULAR SYSTEM | | | |
| No Tissues/Organs Examined | | | |
| ENDOCRINE SYSTEM | | | |
| ADRENAL GLANDS | (47) | (0) | (27) |
| PITUITARY GLAND | (47) | (0) | (27) |
| THYROID GLANDS | (47) | (0) | (25) |
| GENERAL BODY SYSTEM | | | |
| No Tissues/Organs Examined | | | |
| GENITAL SYSTEM | | | |
| CERVIX | (47) | (0) | (26) |
| OVARIES | (47) | (2) | (27) |
| UTERUS | (47) | (2) | (27) |
| VAGINA | (47) | (0) | (27) |

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Species/Strain: Rat/Sprague-Dawley

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F1 Female: F1 NonParent Female

| | Treatment Groups (ppm) | | |
|----------------------------------|------------------------|--------------|------|
| | 0 | 750 | 2500 |
| HEMATOPOIETIC SYSTEM | | | |
| LYMPH NODE | (1) | (0) | (0) |
| LYMPH NODE, MEDIASTINAL | (1) | (0) | (1) |
| SPLEEN | (2) | (1) | (0) |
| NOT OTHERWISE SPECIFIED; SARCOMA | | 1 (100%) [1] | |
| THYMUS | (47) | (0) | (27) |
| INTEGUMENTARY SYSTEM | | | |
| MAMMARY GLANDS | (47) | (0) | (27) |
| SKIN | (1) | (1) | (0) |
| LYMPHOID SYSTEM | | | |
| No Tissues/Organs Examined | | | |
| MUSCULOSKELETAL SYSTEM | | | |
| LIMB | (4) | (4) | (1) |
| PAW | (1) | (0) | (0) |
| NERVOUS SYSTEM | | | |
| No Tissues/Organs Examined | | | |
| RESPIRATORY SYSTEM | | | |
| No Tissues/Organs Examined | | | |
| SPECIAL SENSES SYSTEM | | | |
| No Tissues/Organs Examined | | | |
| URINARY SYSTEM | | | |
| KIDNEYS | (47) | (58) | (27) |
| No Systemic Lesions | | | |

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| Tumor Summary Data for F1 Female F1 NonParent Female | Treatment Groups (ppm) | | |
|---|------------------------|-----|------|
| | 0 | 750 | 2500 |
| Total Animals with Primary Neoplasms | 0 | 0 | 0 |
| Total Primary Neoplasms | 0 | 0 | 0 |
| Total Animals with Benign Neoplasms | 0 | 0 | 0 |
| Total Benign Neoplasms | 0 | 0 | 0 |
| Total Animals with Malignant Neoplasms | 0 | 1 | 0 |
| Total Malignant Neoplasms | 0 | 2 | 0 |
| Total Animals with Metastatic Neoplasms | 0 | 0 | 0 |
| Total Metastatic Neoplasms | 0 | 0 | 0 |
| Total Animals with Malignant Neoplasms Uncertain Primary Site | 0 | 0 | 0 |

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Route: Dosing in Feed
Species/Strain: Rat/Sprague-Dawley

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F1 Male: F1 Parental Males

| | Treatment Groups (ppm) | | |
|---|------------------------|-----|------------|
| | 0 | 750 | 2500 |
| Disposition Summary | | | |
| Animals Initially In Study | 40 | 44 | 40 |
| Scheduled Sacrifice | | | |
| Early Deaths | | | |
| Euthanized, moribund | | | 1 |
| Survivors | | | |
| Scheduled sacrifice, terminal (PND 218 - 224) | 40 | 44 | 39 |
| Animals Examined Microscopically | 40 | 44 | 40 |
| Total number litters | 18 | 22 | 15 |
| ALIMENTARY SYSTEM | | | |
| LIVER | (40) | (0) | (40) |
| CARDIOVASCULAR SYSTEM | | | |
| No Tissues/Organs Examined | | | |
| ENDOCRINE SYSTEM | | | |
| ADRENAL GLANDS | (40) | (0) | (40) |
| NEPHROBLASTOMA; MALIGNANT WITH METASTASIS | | | 1 (3%) [1] |
| PITUITARY GLAND | (40) | (0) | (40) |
| THYROID GLANDS | (40) | (0) | (40) |
| GENERAL BODY SYSTEM | | | |
| FAT | (2) | (0) | (0) |

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Lab: RTI

F1 Male: F1 Parental Males

| | Treatment Groups (ppm) | | |
|---|------------------------|-------------|------|
| | 0 | 750 | 2500 |
| GENITAL SYSTEM | | | |
| COAGULATING GLANDS | (40) | (0) | (40) |
| COWPERS GLANDS | (40) | (0) | (40) |
| EPIDIDYMIS | (40) | (44) | (40) |
| LEVATOR ANI PLUS BULBOCAVERNOSUS MUSCLE | (40) | (0) | (40) |
| LYMPHOMA; MALIGNANT | 1 (3%) [1] | | |
| PREPUTIAL GLANDS | (3) | (1) | (0) |
| PROSTATE | (40) | (44) | (40) |
| SEMINAL VESICLES | (40) | (1) | (40) |
| TESTIS | (40) | (44) | (40) |
| HEMATOPOIETIC SYSTEM | | | |
| LYMPH NODE, MEDIASTINAL | (1) | (0) | (0) |
| LYMPHOMA; MALIGNANT | 1 (100%) [1] | | |
| LYMPH NODE, RENAL | (1) | (0) | (0) |
| LYMPHOMA; MALIGNANT | 1 (100%) [1] | | |
| SPLEEN | (3) | (0) | (1) |
| LYMPHOMA; MALIGNANT | 1 (33%) [1] | | |
| THYMUS | (40) | (0) | (40) |
| INTEGUMENTARY SYSTEM | | | |
| SKIN | (0) | (2) | (0) |
| SEBACEOUS GLAND; EPITHELIUM; ADENOMA | | 1 (50%) [1] | |
| SUBCUTANEOUS; LIPOMA | | 1 (50%) [1] | |
| SKIN, ABDOMINAL | (3) | (0) | (0) |
| LYMPHOID SYSTEM | | | |
| No Tissues/Organs Examined | | | |

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F1 Male: F1 Parental Males

| | Treatment Groups (ppm) | | |
|----------------------------|------------------------|-----|------------|
| | 0 | 750 | 2500 |
| MUSCULOSKELETAL SYSTEM | | | |
| DIAPHRAGM | (0) | (0) | (1) |
| LIMB | (1) | (0) | (1) |
| NERVOUS SYSTEM | | | |
| No Tissues/Organs Examined | | | |
| RESPIRATORY SYSTEM | | | |
| No Tissues/Organs Examined | | | |
| SPECIAL SENSES SYSTEM | | | |
| No Tissues/Organs Examined | | | |
| URINARY SYSTEM | | | |
| KIDNEYS | (40) | (6) | (40) |
| LYMPHOMA; MALIGNANT | 1 (3%) [1] | | |
| NEPHROBLASTOMA | | | 1 (3%) [1] |
| SYSTEMIC LESIONS | | | |
| Multiple Organ(a) | (1) | (0) | (0) |
| LYMPHOMA | 1 (100%) [1] | | |

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Tumor Summary Data for F1 Male F1 Parental Males

| | Treatment Groups (ppm) | | |
|--|-------------------------------|------------|-------------|
| | 0 | 750 | 2500 |
| Total Animals with Primary Neoplasms | 0 | 0 | 0 |
| Total Primary Neoplasms | 0 | 0 | 0 |
| Total Animals with Benign Neoplasms | 0 | 2 | 0 |
| Total Benign Neoplasms | 0 | 2 | 0 |
| Total Animals with Malignant Neoplasms | 1 | 0 | 1 |
| Total Malignant Neoplasms | 5 | 0 | 2 |
| Total Animals with Metastatic Neoplasms | 0 | 0 | 1 |
| Total Metastatic Neoplasms | 0 | 0 | 1 |
| Total Animals with Malignant Neoplasms Uncertain Primary Site | 0 | 0 | 0 |

Experiment Number: R92025B
Test Type: RACB
Route: Dosing in Feed
Species/Strain: Rat/Sprague-Dawley

PA02R: Neoplastic Lesion Summary with Percent and Litter Incidence
Test Compound: 4-Methylimidazole
CAS Number: 822-36-6

Date Report Requested: 08/23/2018
Time Report Requested: 14:02:46
Lab: RTI

F1 Female: F1 Parental Females

| | Treatment Groups (ppm) | | |
|---|------------------------|------------|------------|
| | 0 | 750 | 2500 |
| Disposition Summary | | | |
| Animals Initially In Study | 40 | 44 | 40 |
| Scheduled Sacrifice | | | |
| Early Deaths | | | |
| Euthanized, moribund | 2 | 3 | 6 |
| Found Dead | | 1 | 1 |
| Unscheduled Sacrifice | 1 | 1 | 1 |
| Survivors | | | |
| Scheduled sacrifice, terminal (LD 26 - 28, PND 246 - 251) | 37 | 39 | 32 |
| Animals Examined Microscopically | 40 | 43 | 40 |
| Total number litters | 19 | 22 | 15 |
| ALIMENTARY SYSTEM | | | |
| LIVER | (40) | (43) | (40) |
| LYMPHOMA; MALIGNANT | | 1 (2%) [1] | |
| CARDIOVASCULAR SYSTEM | | | |
| No Tissues/Organs Examined | | | |
| ENDOCRINE SYSTEM | | | |
| ADRENAL GLANDS | (40) | (43) | (40) |
| LYMPHOMA; MALIGNANT | | 1 (2%) [1] | |
| PITUITARY GLAND | (39) | (43) | (40) |
| THYROID GLANDS | (40) | (43) | (40) |
| C-CELL; ADENOMA | | | 1 (3%) [1] |
| GENERAL BODY SYSTEM | | | |
| No Tissues/Organs Examined | | | |

Experiment Number: R92025B
Test Type: RACB
Route: Dosing in Feed
Species/Strain: Rat/Sprague-Dawley

PA02R: Neoplastic Lesion Summary with Percent and Litter Incidence
Test Compound: 4-Methylimidazole
CAS Number: 822-36-6

Date Report Requested: 08/23/2018
Time Report Requested: 14:02:46
Lab: RTI

F1 Female: F1 Parental Females

| | Treatment Groups (ppm) | | |
|-------------------------------|------------------------|--------------|------------|
| | 0 | 750 | 2500 |
| GENITAL SYSTEM | | | |
| CERVIX | (40) | (42) | (40) |
| CLITORAL GLANDS | (3) | (0) | (0) |
| OVARIES | (40) | (43) | (40) |
| PLACENTA | (0) | (1) | (0) |
| UTERUS | (40) | (43) | (40) |
| ENDOMETRIUM; POLYP; STROMAL | 1 (3%) [1] | | |
| VAGINA | (40) | (43) | (40) |
| HEMATOPOIETIC SYSTEM | | | |
| LYMPH NODE, MEDIASTINAL | (1) | (1) | (0) |
| LYMPH NODE, MESENTERIC | (0) | (1) | (0) |
| LYMPHOMA; MALIGNANT | | 1 (100%) [1] | |
| SPLEEN | (0) | (1) | (0) |
| LYMPHOMA; MALIGNANT | | 1 (100%) [1] | |
| THYMUS | (40) | (42) | (40) |
| INTEGUMENTARY SYSTEM | | | |
| MAMMARY GLANDS | (40) | (43) | (40) |
| CARCINOMA | | | 1 (3%) [1] |
| FIBROADENOMA | 2 (5%) [2] | 1 (2%) [1] | |
| SKIN | (1) | (2) | (1) |
| LYMPHOID SYSTEM | | | |
| No Tissues/Organs Examined | | | |
| MUSCULOSKELETAL SYSTEM | | | |
| LIMB | (15) | (2) | (1) |
| NERVOUS SYSTEM | | | |
| No Tissues/Organs Examined | | | |

Experiment Number: R92025B
Test Type: RACB
Route: Dosing in Feed
Species/Strain: Rat/Sprague-Dawley

PA02R: Neoplastic Lesion Summary with Percent and Litter Incidence
Test Compound: 4-Methylimidazole
CAS Number: 822-36-6

Date Report Requested: 08/23/2018
Time Report Requested: 14:02:46
Lab: RTI

F1 Female: F1 Parental Females

| | Treatment Groups (ppm) | | |
|----------------------------|------------------------|--------------|------|
| | 0 | 750 | 2500 |
| RESPIRATORY SYSTEM | | | |
| No Tissues/Organs Examined | | | |
| SPECIAL SENSES SYSTEM | | | |
| No Tissues/Organs Examined | | | |
| URINARY SYSTEM | | | |
| KIDNEYS | (40) | (43) | (40) |
| NEPHROBLASTOMA | 1 (3%) [1] | | |
| URINARY BLADDER | (1) | (0) | (0) |
| SYSTEMIC LESIONS | | | |
| Multiple Organ(a) | (0) | (1) | (0) |
| LYMPHOMA | | 1 (100%) [1] | |

Experiment Number: R92025B
Test Type: RACB
Route: Dosing in Feed
Species/Strain: Rat/Sprague-Dawley

PA02R: Neoplastic Lesion Summary with Percent and Litter Incidence
Test Compound: 4-Methylimidazole
CAS Number: 822-36-6

Date Report Requested: 08/23/2018
Time Report Requested: 14:02:46
Lab: RTI

Tumor Summary Data for F1 Female F1 Parental Females

| | Treatment Groups (ppm) | | |
|--|-------------------------------|------------|-------------|
| | 0 | 750 | 2500 |
| Total Animals with Primary Neoplasms | 0 | 0 | 0 |
| Total Primary Neoplasms | 0 | 0 | 0 |
| Total Animals with Benign Neoplasms | 3 | 1 | 1 |
| Total Benign Neoplasms | 3 | 1 | 1 |
| Total Animals with Malignant Neoplasms | 1 | 1 | 1 |
| Total Malignant Neoplasms | 1 | 4 | 1 |
| Total Animals with Metastatic Neoplasms | 0 | 0 | 0 |
| Total Metastatic Neoplasms | 0 | 0 | 0 |
| Total Animals with Malignant Neoplasms Uncertain Primary Site | 0 | 0 | 0 |

Experiment Number: R92025B
Test Type: RACB
Route: Dosing in Feed
Species/Strain: Rat/Sprague-Dawley

PA02R: Neoplastic Lesion Summary with Percent and Litter Incidence
Test Compound: 4-Methylimidazole
CAS Number: 822-36-6

Date Report Requested: 08/23/2018
Time Report Requested: 14:02:46
Lab: RTI

F2 Male

Treatment Groups (ppm)

| | 0 | 750 | 2500 |
|---|------------|------------|-------------|
| Disposition Summary | | | |
| Animals Initially In Study | 107 | 132 | 69 |
| Scheduled Sacrifice | | | |
| Early Deaths | | | |
| Survivors | | | |
| Scheduled sacrifice, terminal (PND 28) | 107 | 132 | 69 |
| Animals Examined Microscopically | 10 | 5 | |
| Total number litters | 7 | 4 | |

ALIMENTARY SYSTEM

No Tissues/Organs Examined

CARDIOVASCULAR SYSTEM

No Tissues/Organs Examined

ENDOCRINE SYSTEM

No Tissues/Organs Examined

GENERAL BODY SYSTEM

No Tissues/Organs Examined

GENITAL SYSTEM

| | | | |
|---------------|------------|------------|------------|
| TESTIS | (4) | (1) | (0) |
|---------------|------------|------------|------------|

HEMATOPOIETIC SYSTEM

No Tissues/Organs Examined

INTEGUMENTARY SYSTEM

No Tissues/Organs Examined

LYMPHOID SYSTEM

No Tissues/Organs Examined

Experiment Number: R92025B
Test Type: RACB
Route: Dosing in Feed
Species/Strain: Rat/Sprague-Dawley

PA02R: Neoplastic Lesion Summary with Percent and Litter Incidence
Test Compound: 4-Methylimidazole
CAS Number: 822-36-6

Date Report Requested: 08/23/2018
Time Report Requested: 14:02:46
Lab: RTI

F2 Male

Treatment Groups (ppm)

0

750

2500

MUSCULOSKELETAL SYSTEM

No Tissues/Organs Examined

NERVOUS SYSTEM

No Tissues/Organs Examined

RESPIRATORY SYSTEM

No Tissues/Organs Examined

SPECIAL SENSES SYSTEM

No Tissues/Organs Examined

URINARY SYSTEM

KIDNEYS

(6)

(4)

(0)

No Systemic Lesions

Experiment Number: R92025B
Test Type: RACB
Route: Dosing in Feed
Species/Strain: Rat/Sprague-Dawley

PA02R: Neoplastic Lesion Summary with Percent and Litter Incidence
Test Compound: 4-Methylimidazole
CAS Number: 822-36-6

Date Report Requested: 08/23/2018
Time Report Requested: 14:02:46
Lab: RTI

| Tumor Summary Data for F2 Male | Treatment Groups (ppm) | | |
|---|------------------------|-----|------|
| | 0 | 750 | 2500 |
| Total Animals with Primary Neoplasms | 0 | 0 | 0 |
| Total Primary Neoplasms | 0 | 0 | 0 |
| Total Animals with Benign Neoplasms | 0 | 0 | 0 |
| Total Benign Neoplasms | 0 | 0 | 0 |
| Total Animals with Malignant Neoplasms | 0 | 0 | 0 |
| Total Malignant Neoplasms | 0 | 0 | 0 |
| Total Animals with Metastatic Neoplasms | 0 | 0 | 0 |
| Total Metastatic Neoplasms | 0 | 0 | 0 |
| Total Animals with Malignant Neoplasms Uncertain Primary Site | 0 | 0 | 0 |

Experiment Number: R92025B
Test Type: RACB
Route: Dosing in Feed
Species/Strain: Rat/Sprague-Dawley

PA02R: Neoplastic Lesion Summary with Percent and Litter Incidence
Test Compound: 4-Methylimidazole
CAS Number: 822-36-6

Date Report Requested: 08/23/2018
Time Report Requested: 14:02:46
Lab: RTI

F2 Female

Treatment Groups (ppm)

0

750

2500

NERVOUS SYSTEM

No Tissues/Organs Examined

RESPIRATORY SYSTEM

No Tissues/Organs Examined

SPECIAL SENSES SYSTEM

No Tissues/Organs Examined

URINARY SYSTEM

No Tissues/Organs Examined

No Systemic Lesions

Experiment Number: R92025B
Test Type: RACB
Route: Dosing in Feed
Species/Strain: Rat/Sprague-Dawley

PA02R: Neoplastic Lesion Summary with Percent and Litter Incidence
Test Compound: 4-Methylimidazole
CAS Number: 822-36-6

Date Report Requested: 08/23/2018
Time Report Requested: 14:02:46
Lab: RTI

| Tumor Summary Data for F2 Female | Treatment Groups (ppm) | | |
|---|------------------------|-----|------|
| | 0 | 750 | 2500 |
| Total Animals with Primary Neoplasms | 0 | 0 | 0 |
| Total Primary Neoplasms | 0 | 0 | 0 |
| Total Animals with Benign Neoplasms | 0 | 0 | 0 |
| Total Benign Neoplasms | 0 | 0 | 0 |
| Total Animals with Malignant Neoplasms | 0 | 0 | 0 |
| Total Malignant Neoplasms | 0 | 0 | 0 |
| Total Animals with Metastatic Neoplasms | 0 | 0 | 0 |
| Total Metastatic Neoplasms | 0 | 0 | 0 |
| Total Animals with Malignant Neoplasms Uncertain Primary Site | 0 | 0 | 0 |

Experiment Number: R92025B
Test Type: RACB
Route: Dosing in Feed
Species/Strain: Rat/Sprague-Dawley

PA02R: Neoplastic Lesion Summary with Percent and Litter Incidence
Test Compound: 4-Methylimidazole
CAS Number: 822-36-6

Date Report Requested: 08/23/2018
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Lab: RTI

LEGEND

Number of animals examined given for each tissue. If none of the animals examined have the specific lesion then there is a blank for that dose group for that specific lesion.

Number of animals with observation reported with percent incidence in parentheses

Number of litters shown in square brackets for F1 and F2 animals

Phase day range of terminal sacrifice shown in parentheses in disposition summary

SD – Study Day; GD – Gestation Day; LD – Lactation Day; PND – Postnatal Day, adults post-weaning

**** END OF REPORT ****