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dossier created for substance NDA020667-pramipexole dihydrochloride

816ae1ca-1560-48a4-b74c-711535940ae5

View Dossiers Validate

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Type at least 3 characters

OECD Exchange of experimental data NDA020667-pramipexole dihydrochloride

• 1 General information

1

- 2 Classification and Labelling
- 4 Physical and chemical properties
- 5 Environmental fate and pathways
- 6 Ecotoxicological information
- 7 Toxicological information

10

- o 7.1 Toxicokinetics, metabolism and distribution
- 7.2 Acute Toxicity
- 7.3 Irritation / corrosion
- 7.4 Sensitisation
- 7.5 Repeated dose toxicity

2

7.6 Genetic toxicity

Two-Y Study 7.8 Toxicity to 7.9 Specific in 7.10 Exposur 1 7.11 Toxic ef	nvestigations re related observati fects on livestock a nal toxicological info	ions in humans and pets		
UUID 684f5069-eb42-4b	9c-acda-3fdfa3d9	4315 Hide empty fields		
Compare Docum	nent			
0 2 0				
Administrative data	Data source	Materials and methods	Results and discussion	Overall remarks, attachments
Applicant's summary	and conclusion			
Administrative data				
Endpoint carcinogenicity: oral				
Type of information experimental study				
Adequacy of study				
Robust study summary	ý			
Used for classification				
Used for SDS				
Study period				
Reliability				
Rationale for reliability incl.	deficiencies			
Data waiving				
Justification for data waivin	ıg			

• 7.7 Carcinogenicity

■ Two-Year Rat Carcinogenicity

2

Justification for type of information
Attached justification
Attached justification Reason / purpose Actions
Cross-reference
Reason / purpose for cross-reference Related information Remarks Actions
Data source
Data Source
Reference
Data access
Data protection claimed
Materials and methods
Test guideline
Qualifier Guideline Version / remarks Deviations Actions
Principles of method if other than guideline
GLP compliance
Test material
Test material information
• NDA020667_TM1 pramipexole dihydrochloride (6S)-6-N-propyl-4,5,6,7-tetrahydro-1,3-benzothiazole-2,6-diamine;dihydrochloride 104632-25-9
Additional test material information
Specific details on test material used for the study
Specific details on test material used for the study (confidential)
Test animals
Species mouse
Strain NMRI
Details on species / strain selection
Sex male/female
Details on test animals or test system and environmental conditions
Administration / exposure

Route of administration

oral: feed
Type of inhalation exposure (if applicable)
Vehicle no data
Mass median aerodynamic diameter (MMAD)
Geometric standard deviation (GSD)
Remarks on MMAD
Details on exposure
Analytical verification of doses or concentrations
Details on analytical verification of doses or concentrations
Duration of treatment / exposure 2 years
Frequency of treatment

Doses / concentrations

Post exposure period

Dose / conc. Remarks Actions 1

Dose / conc.

not specified

not specified

mg/kg bw/day (actual dose received)

Remarks

2

Dose / conc.

2 mg/kg bw/day (actual dose received)

Remarks

3

Dose / conc.

10 mg/kg bw/day (actual dose received)

Remarks

4

Dose / conc.

0.3 mg/kg bw/day (actual dose received)

Remarks

No. of animals per sex per dose

250 males, 250 females for toxicology 20 males, 20 females for microbiology 159 males, 159 females for toxicokinetics

Control animals

Details on study design

Methods: Dosages: 0.3, 2.0, 10.0 mg/kg/day PPX dihydrochloride (Batch II) The low dose is three times the ED50 for anti-Parkinsonian effects in monkeys, and 5-15 times higher than the expected human maintenance dose range of 1.5-4.5 mg/day (70 kg human). The high dose was selected as the highest tolerable dose given the duration of the study and the limitation of excessive CNS stimulation. The reduction in body weight gain by this dose was used as an indicator of drug toxicity. Route of Administration: Drug-in-diet Species/Strain/Number: Mouse (Chbb:NMRI) 250 males, 250 females for toxicology 20 males, 20 females for microbiology 159 males, 159 females for toxicokinetics Blood was sampled during weeks 2, 40 and 80 at 10.00 to 11.00 AM (4-5 hrs after light onset. Mean initial weights/age: males: 29.3g/37 days females: 24.5g/37 days Parameters monitored/Intervals: Clinical - daily Body weight - weekly (wks 1-26), monthly (wks 27-104) Food consumption - weekly Water consumption - weekly (weeks 14, 26, 39, 52, 65, 78, 91, 104) Effective dose - calculated weekly (wks 1-26); monthly thereafter Hematology - done only prior to sacrifice Plasma Conc - in satellite groups as described above Histopathology - on the following tissues: Stains: Hematoxylin/Eosin - all organs/tissues, tumors/lesions Masson's Trichrome - heart, kidney, liver, gall bladder lung, aorta, tumors/lesions Statistics Routine group comparisons were made by the Bartlett test, one-way ANOVA and Newman-Keuls test. The Exact Log-rank test was used for group comparisons of categorical tumor-bearing animal data, and for between-group comparisons of the number of premature decedents. Plasma

concentration data were evaluated after logarithmic transformation by regression analysis and ANOVA to determine the effects dose, time point and sex. Statistical evaluation of neoplastic lesions was according to Peto et al. (1980) using the trend test with respect to dose. Probability levels for significant findings were 0.05 for rare neoplasms and 0.01 for common neoplasms.
Positive control
Examinations
Observations and examinations performed and frequency
Sacrifice and pathology
Other examinations
Statistics
Any other information on materials and methods incl. tables
Results and discussion
Results of examinations
Clinical signs
Description (incidence and severity) Alopecia: . Male Fernale CON 12% 19% LD 14% 20% MD 18% 52% HD 42% 52% Effective dose: Weekly recordings indicated that effective drug intake was usually within 20% of intended intake. Most variations were in the direction of "greater than intended" intakes.
Dermal irritation (if dermal study)
Description (incidence and severity)
Mortality
Description (incidence) Results: Mortality: 87 males and 101 females died or were sacrificed moribund prior to the end of the study. The increased mortality in treated males was statistically significant ($p = 0.0298$ by a one-tailed positive trend test; $p = 0.0112$ by heterogeneity test). The major factor contributing to the higher mortality rate was sacrifice due to debilitating eczema.
Body weight and weight changes
Description (incidence and severity) Body Weight Gain (Fig. C.5.a.l): M & HDM - sig. decrease - all time points LDF - sig. increase - wks 1-3, 5-6, 9, 15, 17, 19-70, 78, 86-98 M & HDF - sig. decrease - from wk 3 to end of study Food Intake: LDM - tendency for decrease; effect was significant at several time points M & HDM - tendency for increase; effect was significant at several time points LDF - tendency for increase; effect was significant at several time points Water Intake: LDM - no effect M & HDM - tendency for increase; effect was significant at several time points LDF - no effect M & HDF - tendency for increase; effect was significant at several time points
Food consumption and compound intake (if feeding study)
Description (incidence and severity)
Food efficiency
Description (incidence and severity)
Water consumption and compound intake (if drinking water study)
Description (incidence and severity)
Ophthalmological findings
Description (incidence and severity)

Haematological findings

Description (incidence and severity)

Hematology: A number of animals had abnormal WBC counts at sacrifice. This included several controls as well as PPX-treated animals, and there was no clear dose-relationship. (The sponsor has not indicated their criteria for the noted hematological findings in individual animals). Individual variations in animals with abnormal WBC blood counts at termination (Tab. C.5.a.2): In addition, the following hematological changes were noted in animals with "normal" WBC counts: anemia, slight - 2 0M, 3 OF 3 LDF 2 MDM, 1 MDF 3 HDF ", moderate - 1 0M 1 LDF ", marked - 1 OF erythrocytosis - 1 0M, 1 OF 1 LDF 1 HDM Individual variations in animals with abnormal WBC blood counts sacrificed moribund (Tab. C.5.a,3) The following hematological changes were noted in animals with "normal" WBC counts: anemia, slight - 1 0M, 3 0F 1 LDM, 5 LDF 3 MDM, 5 MDF 3 HDM, 6 HDF ", moderate - 6 0F 1 LDF 2 MDF 3 HDF ", marked - 1 HDF (this animal was also stated to have polycythemia???) Group variations: Statistically significant mean changes were noted on various parameters, but few clearly dose/drug-related effects were evident. At termination: increased Hct - HDM decreased lymphocytes(%) - MDM, HDM increased lymphocytes(%) - LDF Moribund sacrifices: decreased RBC, Hb - trend (N.S.) in males decreased Hct - HDM increased leucocytes - MDM (20 to 1 abnormally high value) increased lymphocytes(%) - MDM (The page containing mean values of RBC parameters for females sacrificed moribund was omitted.)

Clinical biochemistry findings
Description (incidence and severity)
Endocrine findings
Description (incidence and severity)
Urinalysis findings
Description (incidence and severity)
Behaviour (functional findings)
Description (incidence and severity)
Immunological findings
Description (incidence and severity)
Organ weight findings including organ / body weight ratios
Description (incidence and severity)
Gross pathological findings
Description (incidence and severity)
Neuropathological findings
Description (incidence and severity)
Histopathological findings: non-neoplastic

Description (incidence and severity)

Pathology: , Non-Neoolastic Lesions Statistically significant drug effects were: The most notable finding was the fibro-osseous proliferative lesion in the femurs of female mice, which was not described in detail by the sponsor, nor was any potential significance suggested. The lesior foccurred spontaneously in control animals, but its incidence was significantly increased by PPX treatment; the incidence rates were similar in all dosage groups. A possibly related finding was decreased femoral fat content in MDF and HDF, suggestive of increased hematopoietic activity. Albassam et al. (Vet. Pathol. 28:381, 1991) have reported upon the spontaneous occurrence of an apparently similar osseous lesion in the femurs and stemums of female B6C3F1 mice (but not male B6C3F1 or female CF1 mice). The lesion was characterized by the lining of epiphyseal plates by large osteoblasts and had large vascularized centers. Similar drug-induced lesions have been produced by estrogens (Silberberg and Silberberg, Gerontology, 16:201, 1970; Gaunt and Pierce, Vet. Pathol, 22:403, 1985), and the sponsor speculates that a dopaminergic-induced imbalance in estrogemprogesterone levels may account for this lesion. No experimental support for this mechanism (i.e., estrogen level measurements) was provided. The prostaglandin E analogue misoprostol also produces an osseous lesion in female mice (Dodd and Port, Vet. Pathol. 24:545, 1987), and the finding appears in the labeling of that product.

Histopathological findings: neoplastic

Description (incidence and severity)

Neoplastic lesions According to the sponsor's analysis, the only statistically significant differences in the incidence of neoplasia between treated and

control animals were decreased occurrences of the following tumors: There was also a non-significant trend for decreased occurrence of hepatocellular adenomas in treated males. Inspection of the Tumor Distribution Summary (Tab. C.5.a,6) and statistical analysis tables (Tab. C.5.a,7) reveals some notable findings or tendencies. The incidence of uterine stromal polyps tended to increase at the higher doses (controls: 2%; LD: 2%; MD: 6%; p= 0.0778 by the Trend Test), as did the incidence of all mesenchymal/epithelial uterine neoplasms (control: 10%; LD: 10%; MD: 14%; HD: 18%; not statistically analyzed). The Test of Heterogeneity indicated a statistically significant increase in the incidence of histiocytic sarcomas in PPX-treated male mice (p = 0.0018), but the tumors were found only in 4 LD animals and are thus not clearly drug-related. There were no significant differences between PPX-treated and control animals with respect to the number of primary neoplasms, the number of mice with primary neoplasms, mice with more than one neoplasm, mice with metastases, the number of benign and malignant neoplasms per group and sex (Tab. C.5.a.8).

Other effects

Description (incidence and severity)

Details on results

Results: Mortality: 87 males and 101 females died or were sacrificed moribund prior to the end of the study. The increased mortality in treated males was statistically significant (p = 0.0298 by a one-tailed positive trend test; p = 0.0112 by heterogeneity test). The major factor contributing to the higher mortality rate was sacrifice due to debilitating eczema. Causes of death are listed in Table C.5.a,l Body Weight Gain (Fig. C.5.a.l): M & HDM - sig. decrease - all time points LDF - sig. increase - wks 1-3, 5-6, 9, 15, 17, 19-70, 78, 86-98 M & HDF - sig. decrease - from wk 3 to end of study Food Intake: LDM - tendency for decrease; effect was significant at several time points M & HDM - tendency for increase; effect was significant at several time points LDF - tendency for decrease at wks 25-78 M & HDF - tendency for increase; effect was significant at several time points Water Intake: LDM - no effect M & HDM - tendency for increase; effect was significant at several time points LDF - no effect M & HDF - tendency for increase; effect was significant at several time points Alopecia: Male Female CON 12% 19% LD 14% 20% MD 18% 52% HD 42% 52% Effective dose: Weekly recordings indicated that effective drug intake was usually within 20% of intended intake. Most variations were in the direction of "greater than intended" intakes. Hematology: A number of animals had abnormal WBC counts at sacrifice. This included several controls as well as PPX-treated animals, and there was no clear dose-relationship. (The sponsor has not indicated their criteria for the noted hematological findings in individual animals). Individual variations in animals with abnormal WBC blood counts at termination (Tab. C.5.a.2): In addition, the following hematological changes were noted in animals with "normal" WBC counts: anemia, slight - 2 0M, 3 OF 3 LDF 2 MDM, 1 MDF 3 HDF ", moderate - 1 0M 1 LDF ", marked - 1 OF erythrocytosis - 1 0M, 1 OF 1 LDF 1 HDM Individual variations in animals with abnormal WBC blood counts sacrificed moribund (Tab. C.5.a,3) The following hematological changes were noted in animals with "normal" WBC counts: anemia, slight - 1 0M, 3 0F 1 LDM, 5 LDF 3 MDM, 5 MDF 3 HDM, 6 HDF ", moderate - 6 0F 1 LDF 2 MDF 3 HDF ", marked - 1 HDF (this animal was also stated to have polycythemia???) Group variations: Statistically significant mean changes were noted on various parameters, but few clearly dose/drug-related effects were evident. At termination: increased Hct - HDM decreased lymphocytes(%) -MDM, HDM increased lymphocytes(%) - LDF Moribund sacrifices: decreased RBC, Hb - trend (N.S.) in males decreased Hct - HDM increased leucocytes - MDM (20 to 1 abnormally high value) increased lymphocytes(%) - MDM (The page containing mean values of RBC parameters for females sacrificed moribund was omitted.) Plasma Concentrations:. The concentration of PPX was above the LOQ (0.1 ng/ml) in all samples at 4-5 hrs after light onset. Increases in plasma concentrations were approximately dose- proportional except for females during week 2 and both sexes during week 40 where the increases were greater than dose proportional (Fig. C.5.a.2; Tab. C.5.a.4). ANOVA indicated that significantly higher concentrations were present in females, although specific occurrences of this finding were not indicated (Tab. C.5.a·5). There was no evidence of drug accumulation. Pathology: , Non-Neoolastic Lesions Statistically significant drug effects were: The most notable finding was the fibro-osseous proliferative lesion in the femure of female mice, which was not described in detail by the sponsor, nor was any potential significance suggested. The lesiorf occurred spontaneously in control animals, but its incidence was significantly increased by PPX treatment; the incidence rates were similar in all dosage groups. A possibly related finding was decreased femoral fat content in MDF and HDF, suggestive of increased hematopoietic activity. Albassam et al. (Vet. Pathol. 28:381, 1991) have reported upon the spontaneous occurrence of an apparently similar osseous lesion in the femurs and sternums of female B6C3F1 mice (but not male B6C3F1 or female CF1 mice). The lesion was characterized by the lining of epiphyseal plates by large osteoblasts and had large vascularized centers. Similar drug-induced lesions have been produced by estrogens (Silberberg and Silberberg, Gerontology, 16:201, 1970; Gaunt and Pierce, Vet. Pathol, 22:403, 1985), and the sponsor speculates that a dopaminergic-induced imbalance in estrogemprogesterone levels may account for this lesion. No experimental support for this mechanism (i.e., estrogen level measurements) was provided. The prostaglandin E analogue misoprostol also produces an osseous lesion in female mice (Dodd and Port, Vet. Pathol. 24:545, 1987), and the finding appears in the labeling of that product. Neoplastic lesions According to the sponsor's analysis, the only statistically significant differences in the incidence of neoplasia between treated and control animals were decreased occurrences of the following tumors: There was also a non-significant trend for decreased occurrence of hepatocellular adenomas in treated males. Inspection of the Tumor Distribution Summary (Tab. C.5.a,6) and statistical analysis tables (Tab. C.5.a,7) reveals some notable findings or tendencies. The incidence of uterine stromal polyps tended to increase at the higher doses (controls: 2%; LD: 2%; MD: 6%; HD: 6%; p= 0.0778 by the Trend Test), as did the incidence of all mesenchymal/epithelial uterine neoplasms (control: 10%; LD: 10%; MD: 14%; HD: 18%; not statistically analyzed). The Test of Heterogeneity indicated a statistically significant increase in the incidence of histiocytic sarcomas in PPX-treated male mice (p = 0.0018), but the tumors were found only in 4 LD animals and are thus not clearly drug-related. There were no significant differences between PPX-treated and control animals with respect to the number of primary neoplasms, the number of mice with primary neoplasms, mice with more than one neoplasm, mice with metastases, the number of benign and malignant neoplasms per group and sex (Tab. C.5.a.8).

Relevance of carcinogenic effects / potential

There were no significant differences between PPX-treated and control animals with respect to the number of primary neoplasms, the number of mice with primary neoplasms, mice with more than one neoplasm, mice with metastases, the number of benign and malignant neoplasms per group and sex (Tab. C.5.a.8).

Key result Dose descriptor Effect level Based on Sex Basis for effect level Remarks on result Actions 1 Key result
• haematology
Remarks on result other: No effect level reported
[default] : No effect level reported
2 Key result Dose descriptor dose level: Effect level Based on Sex male/female Basis for effect level
histopathology: neoplastic
Remarks on result other: No effect level reported
[default]: No effect level reported
Key result Dose descriptor dose level: Effect level Based on Sex male/female Basis for effect level
histopathology: neoplastic
Remarks on result other: No effect level reported
[default]: No effect level reported
4 Key result Dose descriptor dose level: Effect level >= 2 mg/kg bw/day (actual dose received) Based on Sex male Basis for effect level

• haematology

Key result Dose descriptor NOAEL Effect level Based on Sex male/female Basis for effect level Remarks on result other: Not reported by medical writer [default]: Not reported by medical writer Wey result	Remarks on result
Based on Sex male/female Basis for effect level Remarks on result other: Not reported by medical writer [default]: Effect level Based on Sex female Basis for effect level histopathology: non-neoplastic Remarks on result other: No effect level reported default]: No effect level reported default]: No effect level reported Wey result Dose descriptor dose level: Effect level haematology Remarks on result Key result Dose descriptor dose level: Effect level 2 mg/kg bw/day (actual dose received) Based on Sex male Basis for effect level haematology Remarks on result Sex Mey result Dose descriptor dose level: Effect level haematology Remarks on result haematology Remarks on result Sex Mey result Dose descriptor dose level: Haematology Remarks on result Mey result Dose descriptor Mey result Dose descriptor Mey result Dose descriptor dose level: Haematology Remarks on result Mey result Dose descriptor Haematology Remarks on result Haematology Remarks on result Haematology Haematology Remarks on result Haematology Haematology	Dose descriptor
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Key result	
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Remarks on result 9 Key result Dose descriptor dose level:	Key result Dose descriptor dose level: Effect level = 2 mg/kg bw/day (actual dose received) Based on Sex male Basis for effect level
9 Key result Dose descriptor dose level:	 haematology
Dose descriptor dose level:	
	Dose descriptor dose level:

>= 0.3 mg/kg bw/day (actual dose received) Based on Sex male/female Basis for effect level
food consumption and compound intake
Remarks on result 10 Key result Dose descriptor dose level: Effect level Based on Sex male/female Basis for effect level
 mortality
Remarks on result other: No effect level reported
[default]: No effect level reported
11 Key result Dose descriptor dose level: Effect level >= 0.3 mg/kg bw/day (actual dose received) Based on Sex male/female
Basis for effect level
 body weight and weight gain
Remarks on result 12 Key result Dose descriptor dose level: Effect level >= 0.3 mg/kg bw/day (actual dose received) Based on Sex
female Basis for effect level
• haematology
Remarks on result 13 Key result Dose descriptor dose level: Effect level >= 0.3 mg/kg bw/day (actual dose received) Based on Sex male/female Basis for effect level
10 0 1 0

clinical signs

14
Key result
Dose descriptor
dose level:
Effect level >= 2 mg/kg bw/day (actual dose received)
Based on
Sex
male
Basis for effect level
 haematology
Remarks on result
15
Key result
Dose descriptor
dose level:
Effect level
Based on
Sex
male/female
Basis for effect level
 histopathology: neoplastic
Remarks on result
other: No effect level reported
51 C 12 27
[default]: No effect level reported
16
Key result
Dose descriptor
dose level:
Effect level
>= 2 mg/kg bw/day (actual dose received)
Based on
Sex
male/female
Basis for effect level
water consumption and compound intake
Remarks on result
Remarks on result
Remarks on result 17 Key result
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Remarks on result 17 Key result Dose descriptor dose level: Effect level
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Remarks on result 17 Key result Dose descriptor dose level: Effect level 3 mg/kg bw/day (actual dose received) Based on
Remarks on result 17 Key result Dose descriptor dose level: Effect level 3 mg/kg bw/day (actual dose received)
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Remarks on result 17 Key result Dose descriptor dose level: Effect level 0.3 mg/kg bw/day (actual dose received) Based on Sex female
Remarks on result 17 Key result Dose descriptor dose level: Effect level 0.3 mg/kg bw/day (actual dose received) Based on Sex female Basis for effect level
Remarks on result 17 Key result Dose descriptor dose level: Effect level >= 0.3 mg/kg bw/day (actual dose received) Based on Sex female Basis for effect level • haematology
Remarks on result 17 Key result Dose descriptor dose level: Effect level >= 0.3 mg/kg bw/day (actual dose received) Based on Sex female Basis for effect level • haematology Remarks on result 18
Remarks on result 17 Key result Dose descriptor dose level: Effect level - 0.3 mg/kg bw/day (actual dose received) Based on Sex female Basis for effect level • haematology Remarks on result
Remarks on result 17 Key result Dose descriptor dose level: Effect level 0.3 mg/kg bw/day (actual dose received) Based on Sex female Basis for effect level • haematology Remarks on result 18 Key result

10 mg/kg bw/day (actual dose received)
Based on
Sex
female
Basis for effect level
• haematology
Remarks on result
Target system / organ toxicity
Key result Critical effects observed Lowest effective dose / conc. System Organ Treatment related Dose response relationship Relevant for humans Actions
Any other information on results incl. tables
Overall remarks, attachments
Overall remarks
Attachments
Type Attached (confidential) document Attached (sanitised) documents for publication Remarks Actions
Illustration (picture/graph)

Conclusions

Applicant's summary and conclusion

Executive summary Summary: Pramipexole was administered in the diet at doses of 0.3, 2.0, and 10.0 mg/kg/day to Chbb:NMRI mice (50/sex/dose group, 100/sex/control) for two years. Relatively few non-neoplastic and no neoplastic lesions were clearly associated with PPX administration. The rate of premature decedents was higher in PPX-treated animals than in controls; the effect was significant in males. The highest mortality rate was 46% in MDF and HDF. The primary cause of premature deaths were unscheduled sacrifices due to eczema, a condition observed in both control and treated animals. Body weight gain was significantly reduced by % in both sexes at the intermediate and high doses at study termination. A relative increase in the incidence of alopecia was also noted in PPX-treated animals. Spontaneous activity was increased in MD and HD females, and HD males. No statistically significant increases or trends for increases in the incidence of neoplastic lesions in drug-treated animals were apparent according to the sponsor's analysis. A pooled analysis of all mesenchymal/epithelial uterine neoplasms was not presented, but the incidences suggest a possible dose-related positive trend (controls: 10%; LD: 10%; MD: 14%; HD: 16%). Statistically significant decreases in the incidence of adrenal cortical adenomas in HD males, and malignant lymphomas in MD and HD females were noted. For all other neoplastic findings, which included systemic neoplasms of the hemolymphoreticular system, and primary neoplasms in the lung, liver, and adrenals in males, and the reproductive tracts of both sexes, the incidences were low, and equivalent in PPX-treated and control animals. The only histopathological findings that occurred at a higher incidence rate in PPX- treated animals were fibro-osseous proliferative lesions in the femurs of females (all dosage groups). This lesion occurred at a relatively high rate in control females (28%), but approximately doubled in incidence in treated animals .%; similar at the three dosage levels). The more severe lesions were found more frequently in treated animals. This type of lesion is known to occur spontaneously in female mice of other strains including B6C3F1 (Albassam, et al., Vet. Pathol., 28:381, 1991), and has also been observed in mice after administration of the prostaglandin E analogue misoprostol (Dodd and Port, Vet. Pathol.. 24:545, 1987) and estrogens (Gaunt and Pierce, Vet. Pathol. 22:403, 1985). The increased incidence in drug-treated animals may be related to stimulation of estrogen release (Sass and Montali, Lab. Anim. Sci. 30:907, 1980), although no experimental evidence of such a hormonal effect of PPX was presented. Pathological changes that might be expected to accompany a bone abnormality (i.e., blood cell count changes) were not clearly associated with this lesion. Possibly compensatory stimulation of splenic erythropoiesis occurred in both treated and control female mice, and increased hematopoietic activity was noted in the femoral bone marrow of MDF and HDF. Based on plasma level measurements in satellite groups during weeks 2, 40 and 80 at 4-5 hrs after light onset, exposure to PPX in the high dose group ng/ml) was fold higher than the Cmaxs, in humans following the expected maintenance dose of 1.5 mg, t.i.d. Thus, administration of PPX in the diet for two years was not significantly carcinogenic in mice. However, conclusive interpretation of these results is hindered by the marked impairment of body weight development at the mid- and high-dose levels. The low exposures at the lowest dose levels cannot be considered adequate for assessing the tumorigenic effects of this compound. The importance of the fibro-osseous proliferative lesion is questionable since similar lesions are known to occur spontaneously in certain strains of mice, and no similar lesion was observed in long-term rat and monkey PPX studies. The "No Effect" dose was considered to be 0.3 mg/kg/day, although a trend for decreased food intake was apparent at this dose.

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