

TABLE D4
Summary of the Incidence of Nonneoplastic Lesions in Female Mice in the 2-Year Feed Study of Fumonisin B₁^a

	0 ppm	5 ppm	15 ppm	50 ppm	80 ppm
Disposition Summary					
3-Week evaluation	4	4	4	4	4
7-Week evaluation	4	4	4	4	4
9-Week evaluation	4	4	4	4	4
24-Week evaluation	4	4	4	4	4
Animals initially in 2-year study	48	48	48	48	48
Early deaths					
Removed from study	4				
Moribund	7	3	2	3	6
Natural deaths	1	1		6	14
Survivors					
Terminal sacrifice	35	44	46	39	28
Missing	1				
Animals examined microscopically	63	64	64	64	64
3-Week Evaluation					
Liver	(4)	(4)	(4)	(4)	(4)
Apoptosis, centrilobular					4 (100%)
Cytoplas alter, centrilobular				2 (50%)	4 (100%)
Hyperplasia, centrilobular, Kupffer cell					2 (50%)
Hypertrophy, centrilobular				2 (50%)	4 (100%)
Necrosis, centrilobular					1 (25%)
Vacuoliz cyto, centrilobular				1 (25%)	
Vacuoliz cyto, portal					4 (100%)
Tissues Examined with No Lesions Observed					
Kidney					
7-Week Evaluation					
Liver	(4)	(4)	(4)	(4)	(4)
Apoptosis, centrilobular					4 (100%)
Cytoplas alter, centrilobular			2 (50%)	3 (75%)	4 (100%)
Hyperplasia, centrilobular, Kupffer cell					2 (50%)
Hypertrophy, centrilobular				2 (50%)	4 (100%)
Necrosis, centrilobular					2 (50%)
Pigment, centrilobular					4 (100%)
Vacuoliz, cyto, centrilobular		2 (50%)		2 (50%)	1 (25%)
Tissues Examined with No Lesions Observed					
Eye					
Heart					
Kidney					

^a Number of animals examined microscopically at the site and the number of animals with lesion

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9-Week Evaluation					
Intestine small	(1)				
Diverticulum, ileum	1 (100%)				
Kidney	(4)	(4)	(4)	(4)	(4)
Hypertrophy, multifocal, bilateral, renal tubule	1 (25%)				
Inflammation, focal, unilateral		1 (25%)			
Mineralization, focal, unilateral				1 (25%)	
Liver	(4)	(4)	(4)	(4)	(4)
Apoptosis, centrilobular			4 (100%)		
Cytoplas alter, centrilobular			3 (75%)		
Cytoplas alter, diffuse		1 (25%)	1 (25%)	4 (100%)	
Hyperplasia, diffuse, Kupffer cell					4 (100%)
Hypertrophy, centrilobular		1 (25%)	3 (75%)		
Necrosis, focal					1 (25%)
Necrosis, centrilobular			4 (100%)		
Pigment, centrilobular			4 (100%)		
Vacuoliz cyto, centrilobular		1 (25%)			1 (25%)
24-Week Evaluation					
Kidney	(4)	(4)	(4)	(4)	(4)
Inflammation, focal, unilateral	1 (25%)				1 (25%)
Inflammation, multifocal, unilateral				1 (25%)	
Liver	(4)	(4)	(4)	(4)	(4)
Apoptosis, centrilobular	4 (100%)				1 (25%)
Cytoplas alter, centrilobular					4 (100%)
Cytoplas alter, diffuse			1 (25%)	4 (25%)	
Granuloma, multifocal	3 (75%)				4 (100%)
Hypertrophy, centrilobular	1 (25%)		1 (25%)		4 (100%)
Inflammation, multifocal				1 (25%)	
Pigment, centrilobular	4 (100%)				4 (100%)
Thymus	(1)				
Cyst, focal	1 (100%)				
Uterus		(1)			
Endometriosis, multifocal		1 (100%)			
Tissues Examined with No Lesions Observed					
Ovary					
Oviduct					
2-Year Study					
Adrenal gland	(45)	(3)	(3)	(9)	(40)
Amyloid dep, multifocal					1 (3%)
Hemorrhage, multifocal, bilateral				1 (11%)	
Hyperplasia, bilateral, cortex, spindle cell	38 (84%)	2 (67%)	2 (67%)	8 (89%)	37 (93%)
Hyperplasia, bilateral, medulla					2 (5%)
Hyperplasia, unilateral, cortex, spindle cell	6 (13%)	1 (33%)			3 (8%)
Pigment, focal, unilateral	1 (2%)				1 (3%)
Pigment, multifocal, bilateral					2 (5%)

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2-Year Study (continued)					
Bone, femur	(47)	(3)	(2)	(8)	(47)
Hyperplasia, diffuse	1 (2%)				
Proliferation, focal	5 (11%)	1 (33%)			3 (6%)
Proliferation, multifocal	10 (21%)				5 (11%)
Bone, sternum	(47)	(4)	(2)	(8)	(48)
Proliferation, focal	1 (2%)				7 (15%)
Proliferation, multifocal	27 (57%)	1 (25%)	2 (100%)		11 (23%)
Bone marrow	(47)	(4)	(2)	(8)	(45)
Hyperplasia, diffuse	25 (53%)	3 (75%)	2 (100%)	2 (25%)	28 (62%)
Hyperplasia, multifocal	1 (2%)				
Pigment					1 (2%)
Brain, cerebrum	(47)	(4)	(2)	(9)	(47)
Cyst epith inc	1 (2%)				
Edema, focal		1 (25%)			
Edema, multifocal					1 (2%)
Inflammation, chronic, artery, meninges		1 (25%)			
Mineralization, focal	2 (4%)				
Mineralization, multifocal	11 (23%)		1 (50%)		7 (15%)
Necrosis, focal		1 (25%)			
Necrosis, multifocal					1 (2%)
Clitoral gland	(34)	(3)		(2)	(34)
Cyst	1 (3%)				
Cyst, bilateral					1 (3%)
Cyst, multifocal	10 (29%)	2 (67%)			13 (38%)
Cyst, multifocal, bilateral					1 (3%)
Dilatation	1 (3%)				
Dilatation, multifocal	1 (3%)				
Inflammation, chronic, focal	1 (3%)				1 (3%)
Inflammation, chronic, multifocal	1 (3%)				
Inflammation, subacute, multifocal	1 (3%)				
Ear	(46)	(3)	(2)	(6)	(41)
Inflammation, chronic, focal					1 (2%)
Esophagus	(46)	(4)	(2)	(8)	(46)
Hyperkeratosis, diffuse		2 (50%)			
Eye	(45)	(3)	(2)	(4)	(36)
Hyperplasia, melanocyte, diffuse					1 (3%)
Inflammation, chronic, diffuse, unilateral, cornea	1 (2%)				
Harderian gland	(46)	(5)	(3)	(8)	(44)
Degen, focal	1 (2%)				
Inflammation, chronic	6 (13%)		1 (33%)	1 (13%)	4 (9%)
Inflammation, subacute	2 (4%)	1 (20%)			3 (7%)
Regeneration, focal	1 (2%)				
Heart	(47)	(4)	(2)	(9)	(47)
Cardiomyopathy, multifocal	1 (2%)	1 (25%)			
Congestion, atrium					1 (2%)
Degen, multifocal		1 (25%)		1 (11%)	1 (2%)
Inflammation, subacute, multifocal				1 (11%)	
Thrombus, focal					1 (2%)
Thrombus, focal, ventricl rgt	1 (2%)				
Thrombus, ventricl lft				1 (11%)	
Intestine large, rectum	(47)	(4)	(2)	(6)	(34)
Hyperplasia, lymphoid, focal	1 (2%)				
Intestine small, ileum	(47)	(3)	(2)	(6)	(35)
Hyperplasia, lymphoid					1 (3%)
Hyperplasia, lymphoid, focal	2 (4%)				

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2-Year Study (continued)					
Intestine small, jejunum	(47)	(3)	(3)	(5)	(35)
Hyperplasia, lymphoid, focal	1 (2%)				
Kidney	(47)	(48)	(48)	(48)	(42)
Amyloid dep, glomerulus	1 (2%)				
Amyloid dep, multifocal					1 (2%)
Cyst	1 (2%)		1 (2%)	1 (2%)	2 (5%)
Degen, multifocal, cortex, renal tubule		1 (2%)			
Dilatation, diffuse, pelvis				2 (4%)	2 (5%)
Glmsclerosis, multifocal	15 (32%)	18 (38%)	19 (40%)	20 (42%)	19 (45%)
Hyperplasia, focal, cortex, renal tubule		3 (6%)			1 (2%)
Hyperplasia, lymphoid, focal			1 (2%)		
Hyperplasia, lymphoid, multifocal			3 (6%)		
Hyperplasia, multifocal, cortex, renal tubule		2 (4%)	1 (2%)	2 (4%)	
Hypertrophy, focal, cortex, renal tubule	1 (2%)				
Inflammation, chronic	1 (2%)				1 (2%)
Inflammation, chronic, focal	5 (11%)	2 (4%)	4 (8%)	9 (19%)	2 (5%)
Inflammation, chronic, multifocal	3 (6%)	16 (33%)	12 (25%)	15 (31%)	4 (10%)
Inflammation, subacute, focal	2 (4%)	3 (6%)	2 (4%)	1 (2%)	1 (2%)
Inflammation, subacute, multifocal	5 (11%)	5 (10%)	4 (8%)	6 (13%)	6 (14%)
Metapl, osseous, focal			1 (2%)		
Mineralization, focal, renal tubule				1 (2%)	
Mineralization, renal tubule				1 (2%)	
Necrosis, multifocal	1 (2%)				
Nephropathy, chronic, multifocal					2 (5%)
Proliferation, focal, renal tubule		1 (2%)		2 (4%)	
Proliferation, multifocal, renal tubule			1 (2%)		
Regeneration, focal, cortex, renal tubule	1 (2%)				
Lacrimal gland	(46)	(4)	(1)	(7)	(40)
Atrophy, focal	1 (2%)				
Cytoplas alter				1 (14%)	
Focal cell ch	1 (2%)				
Inflammation, chronic	1 (2%)				1 (3%)
Inflammation, chronic, focal	5 (11%)	1 (25%)			2 (5%)
Inflammation, chronic, multifocal	2 (4%)				2 (5%)
Inflammation, subacute, focal	3 (7%)				2 (5%)
Necrosis, multifocal					1 (3%)
Liver	(47)	(48)	(48)	(47)	(45)
Apoptosis, hepatocyte				7 (15%)	14 (31%)
Basoph focus	2 (4%)	1 (2%)	2 (4%)	2 (4%)	2 (4%)
Cyst, focal	1 (2%)		1 (2%)	1 (2%)	
Cyst, multifocal				1 (2%)	
Ectasia, focal					1 (2%)
Eosin focus		1 (2%)		3 (6%)	4 (9%)
Fatty change, focal					2 (4%)
Fatty change, multifocal					1 (2%)
Granuloma				1 (2%)	
Granuloma, multifocal	3 (6%)	14 (29%)	9 (19%)	36 (77%)	24 (53%)
Hemorrhage, multifocal					1 (2%)
Hypertrophy, diffuse, hepatocyte				27 (57%)	31 (69%)
Infiltrat cell, lymphocytic, focal			2 (4%)		
Infiltrat cell, lymphocytic, multifocal	18 (38%)	17 (35%)	14 (29%)	21 (45%)	6 (13%)
Mixed cl focus				1 (2%)	5 (11%)
Necrosis, focal	2 (4%)	1 (2%)		1 (2%)	
Necrosis, multifocal	1 (2%)	1 (2%)	1 (2%)	29 (62%)	26 (58%)
Necrosis, multifocal, centrilobular	1 (2%)				

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2-Year Study (continued)					
Liver (continued)	(47)	(48)	(48)	(47)	(45)
Pigment, multifocal		4 (8%)	3 (6%)	38 (81%)	35 (77%)
Tension lipid	3 (6%)	5 (10%)	4 (8%)	4 (9%)	1 (2%)
Vacuoliz cyto, centrilobular	2 (4%)	4 (8%)	5 (10%)	2 (4%)	
Vacuoliz cyto, diffuse	2 (4%)	6 (13%)	2 (4%)	19 (40%)	2 (4%)
Vacuoliz cyto, focal	1 (2%)				1 (2%)
Vacuoliz cyto, multifocal	2 (4%)	1 (2%)	1 (2%)	2 (4%)	12 (27%)
Vacuoliz cyto, periportal	1 (2%)			2 (4%)	
Lung	(47)	(4)	(2)	(9)	(47)
Congestion, diffuse					2 (4%)
Edema, diffuse					1 (2%)
Inflammation, chronic					1 (2%)
Inflammation, chronic, focal	2 (4%)				
Inflammation, chronic, multifocal	5 (11%)				5 (11%)
Inflammation, multifocal	1 (2%)				
Inflammation, subacute, focal	1 (2%)				
Inflammation, subacute, multifocal	2 (4%)				5 (11%)
Inflammation, subacute, multifocal, interstitim, perivascular	1 (2%)				
Necrosis, focal				1 (11%)	
Lymph node, mandibular	(46)	(5)	(3)	(8)	(44)
Cyst, multifocal			1 (33%)		
Deplet lymph, diffuse					1 (2%)
Hyperplasia, lymphoid	6 (13%)				4 (9%)
Pigment, multifocal	3 (7%)			2 (25%)	3 (7%)
Lymph node, mesenteric	(47)	(5)	(5)	(8)	(39)
Cyst, diffuse				1 (13%)	
Hemorrhage, multifocal					1 (3%)
Hyperplasia, lymphoid	4 (9%)				4 (10%)
Hyperplasia, lymphoid, diffuse	1 (2%)				
Pigment	1 (2%)				
Pigment, multifocal	3 (6%)	1 (20%)			2 (5%)
Mammary gland	(46)	(2)	(2)	(9)	(38)
Dilatation, multifocal, duct	1 (2%)				
Edema, diffuse	1 (2%)				
Mesentery				(1)	(1)
Necrosis, focal					1 (100%)
Necrosis, focal, fat				1 (100%)	
Nose	(47)	(4)	(2)	(9)	(48)
Cytoplas alter, olfactory epi					1 (2%)
Inflammation, acute, multifocal	1 (2%)				
Inflammation, chronic, multifocal	1 (2%)				
Inflammation, subacute, focal	1 (2%)				
Inflammation, subacute, multifocal	4 (9%)				1 (2%)
Proliferation, focal	1 (2%)				1 (2%)
Proliferation, multifocal	4 (9%)				
Ovary	(46)	(15)	(15)	(22)	(42)
Cyst	24 (52%)	11 (73%)	14 (93%)	15 (68%)	11 (26%)
Cyst, bilateral		1 (7%)			
Hematocyst	1 (2%)				
Hemorrhage, multifocal, right	1 (2%)				
Metapl, squamous, focal, right				1 (5%)	
Mineralization, multifocal				1 (5%)	
Pigment, multifocal	3 (7%)	1 (7%)		1 (5%)	5 (12%)
Pigment, multifocal, bilateral	12 (26%)				10 (24%)
Thrombus, focal, right			1 (7%)		

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2-Year Study (continued)					
Pancreas	(47)	(5)	(2)	(8)	(39)
Atrophy, diffuse, acinar cell	1 (2%)				1 (3%)
Atrophy, multifocal, acinar cell		1 (20%)		1 (13%)	
Cyst, multifocal		1 (20%)			
Inflammation, subacute, focal	1 (2%)				
Inflammation, subacute, multifocal	1 (2%)				
Parathyroid gland	(37)	(2)	(1)	(4)	(34)
Cyst, focal	1 (3%)				
Hyperplasia, focal		1 (50%)			
Pituitary gland	(29)	(2)	(1)	(2)	(29)
Cyst, focal	1 (3%)				
Salivary glands	(47)	(4)	(2)	(8)	(47)
Inflammation, chronic	12 (26%)		1 (50%)		6 (13%)
Inflammation, subacute	6 (13%)		1 (50%)		6 (13%)
Skeletal muscle	(47)	(4)	(2)	(9)	(48)
Degen					2 (4%)
Inflammation, subacute, focal					2 (4%)
Skin	(47)	(4)	(1)	(9)	(42)
Edema, diffuse				1 (11%)	
Hyperplasia, focal, vulva					1 (2%)
Spinal cord, thoracic	(47)	(4)	(2)	(8)	(46)
Degen, multifocal		1 (25%)			
Inflammation, chronic, multifocal	1 (2%)				
Necrosis, multifocal		1 (25%)			
Spleen	(47)	(10)	(13)	(17)	(42)
Amyloid dep, multifocal					1 (2%)
Congestion	1 (2%)				
Congestion, multifocal					1 (2%)
Hema cell prol	2 (4%)	2 (20%)		4 (24%)	8 (19%)
Hyperplasia, erythrocyte, multifocal	1 (2%)				
Hyperplasia, lymphoid	14 (30%)	2 (20%)	3 (23%)	5 (29%)	4 (10%)
Stomach, forestomach	(46)	(4)	(2)	(9)	(43)
Edema, diffuse				1 (11%)	
Hyperkeratosis, diffuse		1 (25%)			1 (2%)
Hyperplasia, diffuse		1 (25%)			1 (2%)
Hyperplasia, focal	1 (2%)				
Inflammation					1 (2%)
Inflammation, proliferative, chronic, diffuse					1 (2%)
Inflammation, subacute, focal				1 (11%)	
Inflammation, subacute, multifocal		1 (25%)			
Proliferation, chronic, focal					1 (2%)
Ulcer					1 (2%)
Stomach, glandular	(46)	(4)	(2)	(6)	(39)
Mineralization, focal				1 (17%)	1 (3%)
Necrosis, focal					1 (3%)
Thymus	(37)	(4)	(2)	(5)	(34)
Atrophy	2 (5%)	2 (50%)		1 (20%)	3 (9%)
Cyst					2 (6%)
Hemorrhage, multifocal				1 (20%)	
Hyperplasia, lymphoid	1 (3%)				
Thyroid gland	(46)	(3)	(1)	(7)	(41)
Cyst	2 (4%)				4 (10%)
Hyperplasia, multifocal	1 (2%)				

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2-Year Study (continued)					
Tongue	(47)	(4)	(2)	(9)	(46)
Granuloma, focal	1 (2%)				
Hyperkeratosis, focal					1 (2%)
Inflammation, chronic, focal	1 (2%)				
Inflammation, chronic, multifocal, artery		1 (25%)			
Inflammation, subacute, multifocal					1 (2%)
Urinary bladder	(45)	(4)	(2)	(8)	(35)
Hyperplasia, multifocal, mucosa		1 (25%)			
Hyperplasia, papillary, multifocal, mucosa					1 (3%)
Inflammation, chronic	9 (20%)		1 (50%)	2 (25%)	6 (17%)
Inflammation, chronic, focal	1 (2%)				
Inflammation, subacute	3 (7%)				2 (6%)
Uterus	(47)	(38)	(32)	(38)	(42)
Cyst, endometrium	2 (4%)				3 (7%)
Cyst, focal	1 (2%)				
Cyst, focal, bilateral					1 (2%)
Cyst, focal, unilateral			1 (3%)		2 (5%)
Cyst, multifocal	5 (11%)	8 (21%)		3 (8%)	1 (2%)
Cyst, multifocal, bilateral	33 (70%)	18 (47%)	19 (59%)	18 (47%)	20 (48%)
Cyst, multifocal, endometrium					1 (2%)
Cyst, multifocal, unilateral	1 (2%)	3 (8%)	5 (16%)	2 (5%)	1 (2%)
Dilatation					1 (2%)
Dilatation, diffuse		1 (3%)		1 (3%)	
Dilatation, multifocal				1 (3%)	
Dilatation, diffuse, bilateral	2 (4%)	3 (8%)	6 (19%)	2 (5%)	1 (2%)
Dilatation, diffuse, unilateral	1 (2%)	4 (11%)	3 (9%)	2 (5%)	1 (2%)
Dilatation, multifocal, bilateral		1 (3%)	1 (3%)	6 (16%)	
Hemorrhage, multifocal		1 (3%)			
Inflammation, chronic, multifocal					1 (2%)
Mineralization, focal	1 (2%)				
Mineralization, multifocal					1 (2%)
Pigment, multifocal, bilateral					1 (2%)
Thrombus, multifocal		1 (3%)			1 (2%)