no. 10406) has been subsumed into the term "Isolated ossification site" which is located under specific skull bones (e.g., basisphenoid, exoccipital, interparietal, etc.).

In Version 2, the number of observational findings presented in the tables has been greatly increased from Version 1. The rationale for this change was that technical scientists have often been forced to create their own terminology for findings when a description of these findings was not presented in the tables. This had the potential for creating inconsistencies in applied terminology across laboratories and/or across studies, and defeated the intended objective of a harmonized nomenclature. The International Nomenclature Committee carefully considered the applicability and appropriateness of each term that was added to the findings. Judgment was applied in deciding whether it was likely that specific findings would be observed in practice. Those that were considered unlikely to occur or were judged to be rarely observed or reported were not included in the tables. For these rarer occurrences, the practitioner is encouraged to apply the principles illustrated in the current presentation to construct a suitable description.

In order to clarify the organization and content of Version 2, a number of issues and considerations specific to each of the tables are addressed below:

3.1. External abnormalities (Table 1)

Omphalocele vs. umbilical hernia

Omphalocele is the result of failure of return of the intestinal loops into the body cavity, such that some of the intestines remain protruding through a defect in the ventral abdominal wall, usually at the umbilicus. The protruding intestines are covered by a thin transparent membrane, through which the loops can be easily seen. While this membrane may occasionally rupture, a remnant of the membrane will usually still be visible.

In umbilical hernia, the intestines return normally into the body cavity, but the ventral abdominal wall fails to close completely at the umbilical ring, allowing a varying amount of the intestines to protrude from the umbilical area. In contrast to omphalocele, the protruding intestines in umbilical hernia are covered by skin, not just a transparent membrane. The intestines are less easily seen in this defect, therefore, and it often presents superficially just as a bulge or protrusion in the umbilical region, covered by skin.

Since both defects are characterized by the protrusion of intestine through the umbilicus, omphalocele might sometimes be mistakenly described as umbilical hernia and vice versa. The simplest way to differentiate these two defects is to note that in omphalocele, the intestine is typically covered by a transparent membrane, while in umbilical hernia it is covered by non-transparent skin.

3.2. Visceral abnormalities (Table 2)

Lung and liver lobation

Flexibility is provided in the visceral table to allow both general and specific descriptions for the fetal lung and liver. Some laboratories may use, "liver" or "lung" as general terms, to describe various abnormalities in these organs. However, other laboratories may go further and describe the alterations detected in specific lobe(s).

3.3. Skeletal abnormalities (Table 3)

Structural change versus ossification state

A major change to the skeletal table is the incorporation of an additional column (following the Observation column) that identifies each observation term as "S" or "O." It is hoped that this will stress the importance of trying to distinguish between skeletal changes that are the result of structural abnormality and those that are a change from the expected ossification state (i.e., a delayed or accelerated progression of the normal ossification process, relative to gestational age) in an otherwise normal structure/bone. It is not only important that these differences are correctly detected at the bench level but also that appropriate terminology is used to describe them. "S" has been used to denote terms that are recommended to describe a structural changes (e.g., changes in size or shape of the bone) and "O" has been used to denote terms that are recommended to describe changes in the state of ossification.

Cartilage evaluation

The structural terms (S) are appropriate for cartilage as well as ossified bone evaluation. According to in-house protocol, individual laboratories might choose to further qualify either the nomenclature (as listed in the 'Region/Organ/Structure' column) for the affected structure or the structural observation term (S) to indicate that the finding has been observed in a structure that was at least in part visualized as cartilage. Examples are: "Cartilaginous vertebral centrum, dumbbell-shaped" or "Ribs 9, 10 cartilaginous fusion."

"Supernumerary site" or "isolated ossification site"

A further enhancement intended to clarify the distinction between structural change and ossification state has been the replacement of "extra ossification site" (Version 1 term) by two separate terms, "supernumerary site" and "isolated ossification site." The former is a structure (S) term and describes an extraneous localized bone (or cartilage) "island," such as a sutural bone. The latter is an ossification (O) term, intended to describe an ossification site within the expected margins of a normal precursor of that bone but separated from the main ossified (alizarin red stained) area.

Supernumerary ribs

In Version 1, supernumerary ribs were described as "cervical rib", "full supernumerary rib" and "short supernumerary rib" and these observations were included in the main "Rib" section of the skeletal table. In Version 2, supernumerary ribs have been presented in a separate section that follows the main rib section and the terminology options have been expanded to include three categories (designated "full", "short" and "cartilaginous") for both cervical ribs and supernumerary (thoracolumbar) ribs and to accommodate the use of a new naming scheme proposed by Chernoff and Rogers [8]. In this latter publication, it was shown that both supernumerary cervical and supernumerary thoracolumbar ribs fall into two categories; these were named as "supernumerary ribs" and "ossification sites". "Supernumerary ribs" are larger (longer) structures with distal cartilage present and are likely to be permanent, ultimately remaining as distinct ribs; "ossification sites" are smaller (shorter) structures without distal cartilage and are likely to be transient, ultimately becoming part of the lateral processes of the adjacent vertebra. In accordance with this scheme, new synonyms for cervical rib are "CR" ("cervical rib", now listed for "supernumerary rib cervical full") and "COS" ("cervical ossification site", now listed for "supernumerary rib cervical short"), a new synonym for full supernumerary rib (now listed as "supernumerary rib thoracolumbar full") is "LR" ("lumbar rib") and a new synonym for short supernumerary rib (now listed as "supernumerary rib thoracolumbar short") is "LOS" ("lumbar ossification site").

Malpositioned pelvic girdle

An additional observation included in the skeletal table concerns evaluation of the position of the pelvic girdle relative to the number of prepelvic vertebrae (i.e., the number of vertebrae cranial to the point of pelvic articulation). The "expected" number of prepelvic vertebrae in all of the common rat, mouse and rabbit strains is 26. However, variations in the development of the axial skeleton can

Pre-pelvic vertebrae[a]	Rat/Mouse			Rabbit			
	Expected	Possible variations		Expected	Possible variations		
Cervical	7	7	7	7	7	7	7
Thoracic	13	14	12	12	13[b]	13[b]	12
Lumbar	6	6	6	7	6	7	6
Total	26	27	25	26	26	27[b]	25

[a] Also see Appendix D.
[b] In the rabbit, the incidence of 13th rib and 27th pre-pelvic vertebra differs quite markedly between strains and within the same strain from different sources

Fig. 1. Typical vertebral configurations in rodents and rabbits.

lead to changes in this number (usually to 25 or 27) and occur in a proportion of control animals in all of these species.

Changes in the expected proportions of animals with different configurations in treated groups can provide a sensitive indicator of treatment effect. Typical vertebral configurations in rodents and rabbits are shown in Fig. 1.

Further considerations in animals showing variation in vertebral configuration are associated variations in the number and/or type of ribs. Typically, an increased number of prepelvic vertebrae is associated, in the same fetus, with a supernumerary rib at the thoracolumbar border and, in some cases, an increased number of "true" or "vertebrosternal" ribs (ribs with costal cartilages directly attached to the sternum) and a long costal cartilage on rib number 10 or 11. Conversely, the presence of a supernumerary cervical rib can be associated with fewer (usually 12) thoracic ribs, fewer (usually 6) vertebrosternal ribs, fewer (usually 25) prepelvic vertebrae and short costal cartilage on rib number 9 or 10.

Cartilage staining facilitates easier evaluation of costal cartilage, which allows further characterization of vertebral/rib configuration through clear identification of "true" ("vertebrosternal") ribs and "false" ribs. True ribs are upper thoracic ribs (normally numbers 1–7, associated with thoracic vertebrae 1–7) that are attached directly to the sternum. False ribs (and false floating ribs) are those that are not attached directly to the sternum. In the case of the common laboratory animals, these are normally ribs 8–13 in the rat and mouse and ribs 8–12 in the rabbit. Of these, ribs 8–9 or 10 (dependent upon species/strain) usually have long costal cartilages almost reaching the sternum and the remainder (numbers 10, or 11-12, or 13) usually have short costal cartilages.

Consistent use of long/large and short/small

The revised terminology has adopted a consistent use of the terms "long," "large," "short," and "small". Only the term "long" is actually an addition to the previous Version 1 terminology. The terms "long" and "short" have been added to describe abnormalities of those structures that clearly have a prominent length dimension. The terms "large" and "small" are included to describe changes in size but within normal proportions. As defined in Appendix A, it is noted that in the case of describing skeletal abnormalities, these terms are meant to be used only when the abnormality involves the bone precursor. Thus care must be used to differentiate, for example, a "short" femur from an "incompletely ossified" femur.

3.4. Maternal-fetal abnormalities (Table 4)

The table of "Maternal–Fetal Abnormalities" addresses findings of the amniotic fluid, placenta, and umbilical cord. These findings were relocated from the Version 1 external and/or visceral tables, since they are technically not fetal observations. Presenting these tissues and findings in a separate table also emphasizes the importance of their evaluation.

4. Appendices of additional information

Additional information has been included in Version 2 to guide and inform the user of this glossary:

As with Version 1, commonly used terminology is defined in Appendix A: "Common Descriptive Terminology Used More Than Once in the Glossary." It permits the removal of repetitive synonyms, *related terms*, and non-preferred terms from the glossary tables; however, it also requires that the user consult Appendix A simultaneously with the tables. This appendix has been revised to accommodate the recording of cartilage observations (generally visualized in specimens that have been "double stained" with alcian blue for cartilage and alizarin red for ossified bone), which are often helpful in distinguishing changes in ossification state from alterations in structure.

No single medical dictionary has been designated as the primary source for the definitions included in Appendix A. Rather, it is recognized that there are a number of relevant and useful anatomical textbooks that may provide such information (Fig. 2).

Appendix B presents "Syndromes and Combining Terms", which includes abnormalities with multiple affected structures. Most of the syndrome terms and some of the combining terms are considered diagnostic in nature, but there might not be a better descriptive term to use in cases of multiple anomalies.

Appendix C, "Nomenclature–Alternative Terms," provides alternative names for selected structures listed in the "Observation" column. For example, "cervical vertebra 1" may be called the "atlas."

In Appendix D, "Structural Differences – Rat, Mouse, and Rabbit," visceral and skeletal structures that are different among these three species are summarized.

Appendix E presents common skeletal foramina and processes. Although a detailed description of the foramina and processes of ossified bones is generally not needed in a typical skeletal evaluation for regulatory developmental toxicity studies, there may be situations in which such detail would be valuable in characterizing a particular anomaly of development. Appendix E includes harmonized nomenclature for the description of the most commonly

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Fig. 2. Bibliography of select anatomical textbooks.

described foramina and processes. This list is intended as a technical resource and not to imply any recommendation for the routine application of such detailed description.

5. Uses and misuses of the glossary

The basic concepts and tenets addressed in Version 1 remain applicable in Version 2. General principles that should be highlighted are:

1. It is not intended that all observations presented in the extensive lists that comprise the Version 2 terminology tables and appendices should necessarily be used in the *summarization* of data. The lists are provided as a resource for the selection of appropriate terminology when characterizing individual findings that are observed. Hence, the information provided in the tables and appendices is not intended to prescribe the level of detail required for each study.
2. The provided terminology is intended to be used in describing morphological changes from an observed "normal range." Thus, some terms are relative in nature, and consistent application will rely upon the judgment and experience of the observer.
3. Ranking or classification of terms into categories, such as "malformation" and "variation" is not included in the glossary. This approach to characterization of findings is commonly used in some laboratories, but the definitions of such classification and/or grading schemes, as well as the decision to apply such schemes, are left to the discretion of the user. The focus of this harmonized terminology is description and not diagnosis/interpretation.
4. It is beyond the scope of this glossary to specify the normal number of skeletal elements expected for each skeletal region. Nevertheless, some of this information has been incorporated into the tables, and there may be reasons for a particular laboratory to report such findings when characterizing anomalies.
5. Terminology in the glossary generally reflects the most basic observational description and does not describe severity or other modifiers (e.g., relating to symmetry or degree of change), unless it is a necessary aspect of the finding. Such information might, however, be integral to characterizing certain observations and should be considered.
6. In some cases, the merging of incidence data for developmental anomalies may be an appropriate approach to summarization/analysis (in addition to compiling each individual finding separately). The circumstances under which this might be applied, and possible candidates for such merging, are outside the general scope of this paper.
7. Scientific judgment is integral to appropriate application of the information in this glossary and to interpretation of the developmental findings.

6. Future activities

In continuation of this effort on harmonized terminology, and consistent with the approach taken for version 1, questions, comments, additions, and recommendations (either specific or general) from users of this terminology document are encouraged. Input of this nature will provide a strong basis and impetus for future revisions and updates.

In Versions 1 and 2, only the commonly used laboratory mammals (i.e., rats, mice, rabbits) are addressed. Inclusion of terminology specific to other laboratory species, such as primates, has not yet been fully considered. Such an expansion of the terminology will require a continuation of the international collaborative effort and might be a logical direction for Version 3.

An additional possible enhancement to the use of this document would be the availability of illustrative images. Although the value of such a tool for use at either the bench or regulatory level has long been recognized, implementation has remained outside the scope of the current effort. It is hoped that future efforts can be directed towards linking on-line versions of the terminology document with an openly available digital database that provides relevant illustrations of specific developmental abnormalities and descriptions.

It is recognized that over time, technological advances in mammalian fetal evaluation are inevitable. This may include, for example, the increased use of imaging technologies that have become relatively commonplace in human medicine, providing a very different level of anatomical detail and even enabling temporal evaluation of fetal development through non-invasive methods. It may also entail more automated and/or efficient collection, storage, and/or analysis of fetal data. Current terminological conventions may not adequately serve the new methodologies. Thus it is recognized that this internationally harmonized terminology document may at some point require reconsideration and/or updating to accommodate important scientific advancements in the field.

Finally, the broader use of this harmonized terminology is encouraged, in order to help provide a link and enhance understanding within and across scientific disciplines. For example, the harmonized terminology could be useful in characterizing developmental anomalies associated with the phenotypic profiles of genetic variants of laboratory animal strains used in research or in providing common descriptors in constructing computationally based approaches to screening level assessments of developmental toxicology.

Conflict of interest statement

The authors declare that there are no conflicts of interest.

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Table 1
External abnormalities.

Region/Organ/Structure	Observation		Synonym or *Related Term*	Non-preferred Term	Definition	Note	Version 1 Code No.
General	Subcutaneous edema	Generalized	*Anasarca*		An accumulation of interstitial fluid in subcutaneous connective tissue		10001
		Localized			Localized accumulation of fluid		10005
	Conjoined twins		*Omphalosite*		Monozygotic twins with variable incomplete separation into two during cleavage or early stages of embryogenesis	Site and extent of fusion should be described	10002
	Fetus or pup/neonate	Discolored	*Skin discolored*		Generalized or localized region of abnormal color (other than pale)	See also "General – Fetus or pup/neonate Pale" and "Skin – discolored"	New
		Large				Relative to normal	New
		Pale			Generalized absence of color when compared to a normal specimen	See also "General – Fetus or pup/neonate Discolored"	New
		Small	Runt			Relative to normal	New
	Subcutaneous hemorrhage		Petechia, Purpura, Ecchymosis, Hematoma		An accumulation of extravasated blood beneath the skin		10004
	Skin	Absent	Cutis aplasia, *Adermia*		Localized region of no skin development		10003
		Discolored			Localized region of abnormal color	See also "General – Fetus or pup/neonate Discolored"	New
		Lesion	Cutis lesion		Localized region of abnormal skin		New
		Tag			Small appendage of skin		New
Head/neck	Acephalostomia			Acrania	Absence of head but with the presence of mouth-like orifice in the neck region		10008
	Anencephaly			Acrania	Absence of the cranial region of the head, with the brain absent or reduced		10010
	Cranial meningocele				Herniation of meninges through a defect in skull		10016
	Cranioschisis				Fissure of the cranial region of the head with varying degrees of the brain exposed		10011
	Exencephaly			Acrania	Brain protrudes outside the skull due to absence of all or part of the cranial vault	Erosion of brain tissue has not occurred as in anencephaly	10013
	External aural fistula				An opening to a cyst produced by a persistent lateral cervical sinus or reduplicated 1st pharyngeal cleft usually located ventral to the ear		New
	Head	Absent	Acephaly		Absence of the head		10009
		Domed			Cranial region of head appears more elevated and rounded than normal	May or may not be associated with hydrocephaly	10012
		Large	Macrocephaly		Disproportionately large head		10015
		Misshapen					New

Table 1 (*Continued*)

Region/Organ/Structure	Observation		Synonym or *Related Term*	Non-preferred Term	Definition	Note	Version 1 Code No.
Head/neck *Cont.*		Small	Leptocephaly, Microcephaly, Nanocephaly		Disproportionately small head		10018
	Iniencephaly				Exposure of occipital brain and upper spinal cord tissue; involves extreme retroflection of the head		10014
	Meningo-encephalocele		Encephalomeningocele	Cephalocele, Craniocele, Encephalocele	Herniation of brain and meninges through a cranial opening	May or may not be covered by skin	10017
	Meningohydro-encephalocele				Herniation of brain, cerebral ventricle, and meninges through a defect in skull		New
	Narrow head		*Craniostenosis*				10406
Ear	Pinna	Absent	Anotia		Absence of external ear		10019
		Fused	Synotia		Fusion or abnormal approximation of pinnae below the face		10024
		Large	*Long pinna*, Macrotia		Disproportionately large external ear		10020
		Malpositioned	Low set pinna				10021
		Misshapen					10023
		Small	Microtia, *Short pinna*	Ear tab	Disproportionately small external ear		10022
Eye	Cryptophthalmia		Cryptophthalmos		Skin continuous over eye(s) without formation of eyelid(s)	May be associated with micro- or anophthalmia	10026
	Cyclopia		Monophthalmia, Single eyeball, Synophthalmia		Single median orbit; eyeball(s) can be absent, completely or incompletely fused	Snout may be absent or appear as a frontonasal appendage (proboscis) above the orbit	10027
	Eye	Malpositioned					10030
		Open		Ablepharia	Eyeball visible		10033
		Protruding	Exophthalmos, Exophthalmia, Proptosis	Pop-eye	Excessive protrusion of the eyeball		10029
	Eye bulge	Absent				Check for abnormalities of eye prior to opening of the eyelid	10025
		Large				May be associated with macrophthalmia	10028
		Small				May be associated with microphthalmia	10035
	Eyelid	Fissure	Palpebral coloboma		A notch or fissure of the eyelid		10034
		Short	Microblepharia		Short vertical dimension of eyelid		10031
Face	Face	Cleft	Prosoposchisis		Fissure of the face		10036
	Jaw, lower (Mandible)	Absent	Agnathia				10047
		Cleft	Gnathoschisis, Split mandible				10056
	Jaw, lower (Mandible)	Large	Mandibular macrognathia, *Long lower jaw, Protruding lower jaw, Prognathia*	Exognathia			10057
		Small	Brachygnathia, Micromandible, *Short lower jaw*				10058
	Jaw, upper (Maxilla)	Cleft	Gnathoschisis, Split maxilla				New
		Large	Maxillary macrognathia, *Long upper jaw, Protruding upper jaw, Prognathia*	Exognathia			10059
	Jaw, upper (Maxilla)	Small	Maxillary micrognathia, Micromaxilla, *Short upper jaw*				10060
	Lip	Cleft	Cheiloschisis	Harelip	Fissure of the upper lip		10051
	Mouth	Absent	Astomia				10050
		Large	Macrostomia, *Wide mouth*				10055
		Misshapen					New

Table 1 (*Continued*)

Region/Organ/Structure	Observation		Synonym or *Related Term*	Non-preferred Term	Definition	Note	Version 1 Code No.
Face *Cont.*		Small	Microstomia				10062
	Naris	Absent	*Atretic*				10042
		Fused					New
		Malpositioned					10039
		Single	Mononaris				10044
		Small					New
	Palate	Cleft	Palatoschisis, Uranoschisis		Fissure of the palate		10052
		High-arched			Roof of mouth higher than normal		10053
	Palatal rugae	Absent			Absence of one or more rugae		New
		Interrupted					New
		Misaligned	Asymmetrically aligned palatal rugae, *Irregular palatal rugae*				10063
		Misshapen	*Bifurcated palatal rugae, Discontinuous palatal rugae, Interrupted palatal rugae, Short palatal rugae*				10064
		Supernumerary					New
	Papillae	Absent			Dermal projections, generally associated with whiskers		New
		Fused					New
		Malpositioned					New
	Proboscis				Tubular projection replaces the snout		10043
	Snout	Absent	Arhinia				10038
		Large	*Long*				10037
		Malpositioned					10040
		Misshapen					10041
		Small	*Short*				10045
	Tongue	Absent	Aglossia				10046
		Altered surface texture				May be generalized or localized; location and description should be provided	New
		Large	Macroglossia, *Long tongue*			May be protruding	10054
		Misshapen					New
		Protruding					10065
		Small	Microglossia, *Short tongue*				10061
		Split		Forked tongue			New
	Tongue, frenulum	Fused to floor of mouth	Ankyloglossia	Tongue-tie	Shortness or absence of the frenulum of the tongue; tongue fused to the floor of the mouth		10048
	Tooth	Absent	Anodontia, Edentia		Absence of one or more teeth		10049
		Asymmetric					New
		Bent					New
		Discolored					New
		Erupted					New
		Fused					New
		Large	*Long tooth*				New
		Malpositioned					New
		Not erupted					New
		Small	*Short tooth*				New
	Whiskers	Absent					
Limb (fore- or hind-)	Hemimelia			Ectromelia	Absence or shortening of the distal segment(s) of limb	May be further characterized, at skeletal examination, e.g., as being fibular, radial, tibial, or ulnar	10068
	Limb	Absent	Amelia		Complete absence of one or more limbs	Fleshy tab may be present	10066

Table 1 (*Continued*)

Region/Organ/Structure	Observation		Synonym or *Related Term*	Non-preferred Term	Definition	Note	Version 1 Code No.
Limb (fore- or hind-) *Cont.*		Bent					10067
		Fused	*Symmelia*				10075
		Hyperextension			The excessive extension or straightening of a limb or a joint	Limb cannot be flexed. Joint can be specified	10069
		Hyperflexion	Flexed limb	Arthrogryposis	The excessive flexion or bending of a limb or a joint	Limb cannot be straightened Joint can be specified	10070
		Large	Macromelia, *Long limb*				10071
		Malrotated			Limb turned toward the center (i.e., inward rotation) or the periphery (i.e., outward rotation)		10072
		Small	*Brachymelia*, Micromelia, Nanomelia, *Short limb*	Acromelia			10073
	Phocomelia		*Ectromelia*		Reduction or absence of proximal portion of limb, with the paws being attached to the trunk of the body		10074
Paw/digit (fore- or hind-)	Digit	Absent	Adactyly		Absence of all digits	See Digit, few (Ectrodactyly) for absence of some but not all digits	10077
		Few	Ectrodactyly, Oligodactyly		Absence of one or more, but not all, digit(s)	Expected skeletal alterations include absence of all phalanges in each affected digit	10080
		Fused	Ankylodactyly, Syndactyly, Webbed digits		Partial or complete fusion of, or webbing between, digits	Includes bony, cartilaginous, and/or soft tissue	10091
		Large	Dactylomegaly, *Long digit*, Macrodactyly				10081
		Malpositioned	Clinodactyly, Camptodactyly		Deflection of digit(s) from the central axis	Includes fixed flexion deformity of digit(s). Confirmed by skeletal examination to exclude the possibility of artifact	10083
		Misshapen					10085
		Pendulous			Digit attached by a thread of tissue		New
		Small	*Brachydactyly*, Microdactyly, *Short digit*			Expected skeletal alterations include absence or shortening of phalanx(ges)	10079
		Supernumerary	Polydactyly			Can be pendulous	10088
	Claw	Absent				Refers to distal-most tip, nail	10076
		Malpositioned				Refers to distal-most tip, nail	10082
		Small				Refers to distal-most tip, nail	10089
	Paw	Absent	Acheiria, Acheiropodia, Apodia				10078
		Fused	Sympodia			Refers to hind paws in bipeds	10092
		Malrotated		Clubbed paw, Talipes	Paw turned toward the center (i.e., inward) or the periphery (i.e., outward)		10084
		Hyperextension			The excessive extension or straightening of a paw	Carpus or tarsus cannot be flexed	10086
		Hyperflexion	Flexed paw, Tarsal flexure, Carpal flexure	Arthrogryposis	The excessive flexion or bending of a paw	Carpus or tarsus cannot be straightened	10087
		Small	Microcheiria				10090
Tail	Tail	Absent	Acaudia, Anury				10093
		Bent	Angulated tail		Shaped like an angle		10094
		Bifurcated	Branched tail, Double-tipped tail, Forked tail		Tail divided or split		10097
		Blunt-tipped			Rounded or flat at the end, not tapered		10095

Table 1 (*Continued*)

Region/Organ/Structure	Observation		Synonym or *Related Term*	Non-preferred Term	Definition	Note	Version 1 Code No.
Tail *Cont.*		Curled	Curly tail		Curved into nearly a full circle, or coiled		10096
		Discolored			Generalized or localized discoloration of tail		New
		Fleshy tab			Small tag of tissue at tip of tail		10098
		Hooked			Approximately 180 degree bend or curve of the tail		10099
		Kinked			Localized undulation(s) of the tail		10100
		Long					New
		Malpositioned					10101
		Misshapen					New
		Narrow	Constricted tail	Ring tail		Should be specified as entire length or localized	10102
		Small	*Brachyury, Short tail*				10103
		Thread-like	Filamentous tail, Filiform tail			Should be specified as entire length or localized	10104
Trunk	Anus	Absent	Anal atresia, Aproctia, Imperforate anus, Non-patent anus		Absence or closure of the anal opening	May be associated with absent/threadlike tail	10105
		Large					New
		Small					10118
	Anogenital distance (AGD)	Decreased			Shortened distance between anus and genital tubercle	AGD is sexually dimorphic	10107
		Increased			Increased distance between anus and genital tubercle	AGD is sexually dimorphic	10112
	Distended abdomen				Abdomen appears larger than normal	May be due to presence of fluid in abdomen or enlarged organs	New
	Externalized heart		Ectopia cordis		Heart displaced outside thoracic cavity		10108
	Gastroschisis		Laparoschisis, Schistocelia		Fissure of abdominal wall, not involving the umbilicus, and usually accompanied by protrusion of viscera which may or may not be covered by a membranous sac	May be further defined as medial (gastroschisis) or lateral fissure (laparoschisis)	10109
	Genital tubercle	Absent					10106
		Large					New
		Misshapen					New
		Small					10119
	Holorachischisis				Fissure of the entire spinal column		10110
	Hypospadias				Urethra opening on the underside of the penis or on the perineum	Not readily apparent in fetuses or soon after birth	10111
	Kyphosis			Humpback, Hunchback	Increased dorsal convexity in the curvature of the spinal column as viewed from the side		10113
	Large intestine	Prolapsed			Protrusion of large intestine through anus	May be associated with large anus	New
	Lordosis			Hollowback, Swayback, Saddleback	Increased dorsal concavity in the curvature of the spinal column as viewed from the side		10114

Table 1 (*Continued*)

Region/Organ/Structure	Observation		Synonym or *Related Term*	Non-preferred Term	Definition	Note	Version 1 Code No.
Trunk *Cont.*	Omphalocele		Exomphalos	Umbilical hernia	A defect in the abdominal wall at the umbilicus, through which the intestines and other viscera protrude. These may or may not be covered by a thin, translucent sac		10115
	Pelvic region	Narrow			Hindlimbs located more medially than normal		New
	Scoliosis				Lateral curvature of the spinal column		10116
	Spina bifida		Spinal meningocele, Spinal meningomyelocele, Spinal myelocele, Spinal myelomeningocele, Rachischisis		A family of defects in the closure of the spinal column	May be covered with skin (spina bifida occulta) or not covered with skin (spina bifida aperta); may involve protrusion of spinal cord and/or meninges	10120
	Thoracogastroschisis		Thoracoceloschisis		Fissure of thoracic and abdominal walls with thoracic and abdominal viscera, or major parts thereof, exposed ventrally		10121
	Thoracoschisis				Fissure of thoracic wall	Thoracic viscera may be exposed	10122
	Thorax	Narrow	Thoracostenosis		Narrowness of the thoracic region		10123
	Trunk	Large	*Long trunk*				
		Small	*Short trunk*				10117
	Umbilicus	Hernia		Omphalocele	Protrusion of a skin-covered segment of the gastrointestinal tract and/or greater omentum through a defect in the abdominal wall at the umbilicus, the herniated mass being circumscribed and covered with skin; or protrusion of skin-covered viscera through the umbilical ring with prominence of the navel		10124
		Malpositioned					New

Table 2
Visceral abnormalities.

Region/organ/structure	Observation		Synonym or *related term*	Non-preferred Term	Definition	Note	Version 1 code no.
General	Abdomen	Cyst					New
		Fluid-filled	Ascites in abdomen, *Hemorrhagic ascites in abdomen, Intra-abdominal hemorrhage, Red fluid in abdomen*		Effusion and accumulation of red fluid or ascites (watery fluid) in abdomen	Nature of fluid (color, thickness) should be specified	10126
		Tissue mass				Location and description should be provided	New
	Abdominal wall	Cyst				Location and size should be defined	New
		Thin				May be generalized or localized	New
	Aneurysm				Localized sac formed by dilatation of an artery or vein that is filled with blood		10125
	Situs inversus	Abdominal			Mirror-image transposition of the abdominal viscera		New
		Thoracic			Mirror-image transposition of the thoracic viscera		New
		Total			Mirror-image transposition of the abdominal and thoracic viscera		10127
	Thoracic wall	Cyst				Location and size should be defined	New
	Thorax	Fluid-filled	Fluid in thorax, *Hemorrhagic fluid in thorax, Intra-thoracic hemorrhage, Red fluid in thorax*		Effusion and accumulation of red fluid or watery fluid in thorax	Nature of fluid (color, thickness) should be specified	New
		Tissue mass				Location and description should be provided	New
Brain	Brain	Hole	*Cyst*		Appears as discrete 'hole' in fixed brain tissue; may appear as a fluid-filled cyst in fresh brain tissue	May be due to processing artifact in fixed tissue	New
		Large					New
		Misshapen					New
		Small					New
	Cerebellar lobe	Absent				May be further defined as specific structure (e.g., flocculus, paraflocculus)	New
		Discolored				May be generalized or localized	New
		Large					New
		Small					New
	Cerebellum	Discolored				May be generalized or localized	New
		Large					New
		Misshapen					10132
		Small					10134
	Cerebral hemisphere	Large					New
		Small					New
	Cerebrum	Discolored				May be generalized or localized	New
		Large					New
		Misshapen					10133
		Small					10135
	Fourth ventricle	Dilated	*Internal hydrocephaly (10131)*, Large fourth ventricle			See also Ventricles, dilated	New

Table 2 (*Continued*)

Region/organ/structure	Observation		Synonym or *related term*	Non-preferred Term	Definition	Note	Version 1 code no.
Brain *Cont.*		Red material	*Hemorrhagic*				New
	Lateral ventricle	Dilated	Dilated cerebral ventricle, *Internal hydrocephaly (10131)*, Large lateral ventricle			Involvement of anterior portion of lateral ventricle, within olfactory lobe, may also be noted. See also Ventricles, dilated	10128
		Red material	*Hemorrhagic*				New
	Olfactory lobe	Absent				To be used when laterality of absent lobe cannot be determined	New
		Large					New
		Single					New
		Small					New
	Perimeningeal space	Large	*External hydrocephaly (10131)*		Increase in space between brain and skull	May be due to processing artifact	New
		Red material	*Hemorrhagic, Subdural hemorrhage*		Blood between brain and skull	Not to be confused with blood within dural sinus	New
	Pineal gland	Large					New
		Small					New
	Pituitary gland	Absent					New
		Discolored				May be generalized or localized	New
		Large					New
		Malpositioned					New
		Misshapen					New
		Small					New
	Third ventricle	Dilated	*Internal hydrocephaly (10131)*, Large third ventricle			See also Ventricles, dilated	New
	Ventricles	Dilated	*Internal hydrocephaly (10131)*, Large ventricles			See also separate observations for dilated lateral, third, and fourth ventricles	New
		Red material	*Hemorrhagic*				New
Spinal cord	Spinal cord	Absent	*Interrupted*			May be generalized or localized	New
		Discolored				May be generalized or localized; may be due to processing artifact	New
		Double	Duplicated			May be generalized or localized	New
		Interrupted					New
		Large				May be generalized or localized	New
		Narrow				May be generalized or localized	New
		Short					New
Ear	Inner ear	Discolored				May be generalized or localized	New
		Malpositioned					New
		Misshapen					10136
		Red material	*Hemorrhagic*				New
		Small					New
	Inner/middle ear	Discolored				May be generalized or localized; use of "inner/middle ear" is appropriate if location cannot be definitively established	New
		Malpositioned					New
		Misshapen					New

Table 2 (*Continued*)

Region/organ/structure	Observation		Synonym or *related term*	Non-preferred Term	Definition	Note	Version 1 code no.
Ear *Cont.*		Red material	*Hemorrhagic*				New
		Small					New
	Middle ear	Discolored				May be generalized or localized	New
		Malpositioned					New
		Misshapen					New
		Red material	*Hemorrhagic*				New
		Small					New
Eye	Aqueous chamber/humor	Absent					New
		Discolored				May be generalized or localized	New
		Large					New
		Small					New
	Cornea	Opacity	Eye surface opacity		Cornea appears opaque, or, if in section, may be thickened. Opacity can be complete or focal	If seen at fresh examination, on surface of eye, may be called 'surface opacity' since location cannot be definitive May be artifact	New
	Eye	Absent	Anophthalmia				10137
		Discolored				May be generalized or localized; may be further defined by location, e.g., aqueous chamber, vitreous chamber	New
		Large	Macrophthalmia, Megalophthalmia (-mus, -mos)		Large eye, eyeball		10141
		Malpositioned					10142
		Small	Microphthalmia		Small eye, eyeball, globe of eye		10143
	Lens	Absent	Aphakia				10138
		Adhered to cornea					New
		Altered texture				Usually seen on cut surface of sectioned lens; may be generalized or localized	New
		Discolored				May be generalized or localized	New
		Double	Duplicated				New
		Large					New
		Misshapen					10144
		Opacity	Cataract, Eye internal opacity		Opacity of the crystalline lens	If seen at fresh examination, deep in the eye, may be called 'internal opacity' since location cannot be definitive; may be artifact	10139
		Small					10147
	Optic nerve	Absent					New
		Fissure	*Coloboma, Interrupted, Split*		Coloboma: a family of eye defects generally involving a cleft or fissure of an eye structure	Coloboma is not readily apparent in fetuses or soon after birth	10145
	Retina	Fissure	*Coloboma, Interrupted, Split*		Coloboma: a family of eye defects generally involving a cleft or fissure of an eye structure	Coloboma is not readily apparent in fetuses or soon after birth	10145
		Fold			Undulation of retinal layers	Characterization of severity is important; may be due to processing artifact	10146

Table 2 (*Continued*)

Region/organ/structure	Observation		Synonym or *related term*	Non-preferred Term	Definition	Note	Version 1 code no.
Eye *Cont.*	Vitreous chamber/humor (body)	Absent					New
		Discolored				May be generalized or localized	New
		Large					New
		Small					New
Mouth	Gum (Periodontium)	Discolored					New
Naso-pharyngeal tract	Nasal cavity	Large					10150
		Misshapen					New
		Small					10153
	Nasal conchae	Absent					10148
		Fused					New
		Large					New
		Malpositioned					10151
		Misshapen				Includes reduced number of convolutions	New
		Small					10154
	Nasal septum	Absent					10149
		Malpositioned					10152
		Misshapen	Bent				New
		Not fused with palate					New
		Small					10155
	Nasopharynx	Atretic					New
		Interrupted					New
		Dilated	*Large*		Lumen increased in diameter	May be generalized or localized	New
		Misshapen					New
		Narrow			Lumen reduced in diameter	May be generalized or localized	New
	Posterior naris	Atretic	Choanal atresia				New
Thyroid gland	Thyroid gland	Absent					10156
		Discolored				May be generalized or localized	New
		Large					New
		Malpositioned					10157
		Misshapen					New
		Small					New
		Supernumerary lobe	*Pyramidal lobe*				New
Thymus	Thymic cord		Extra thymic tissue, Thymic remnant in the neck, Thymus long cranial		Partially undescended horn of thymus		New
	Thymus	Absent	Athymia, Athymism				10158
		Discolored				May be generalized or localized	New
		Fragmented			Multiple small fragments		New
		Large					New
		Malpositioned					10160
		Misshapen					10161
		Small			Reduced size or remnant of thymus		10162
		Split					10163
		Supernumerary					10164
Heart	Aortic valve	Absent					10165
		Large					10177
		Misshapen				Includes alterations in number of cusps	10189
		Small					10195

Table 2 (*Continued*)

Region/organ/structure	Observation		Synonym or *related term*	Non-preferred Term	Definition	Note	Version 1 code no.
Heart *Cont.*	Atrial septum	Defect			Postnatal communication between atria; includes defects of septa primum and secundum	Not to be confused with the foramen ovale which normally remains open until birth	10171
	Atrium	Malpositioned					New
		Misshapen					New
		Large	*Distended*				New
		Small	*With no blood inside*				New
	A-V canal	Persistent			Defects of endocardial cushions resulting in low atrial and high ventricular septal defects	A-V = atrioventricular	10194
	A-V ostium	Dilated			Enlargement of an atrioventricular orifice	A-V = atrioventricular	10179
	A-V septum	Defect			Inappropriate communication between atrium and ventricle	A-V = atrioventricular	10175
	Chordae tendinae	Absent					10166
	Foramen ovale	Premature closure				Foramen ovale is normally open in fetuses	New
	Heart	Absent	Acardia				New
		Large	Cardiomegaly				10172
		Malpositioned	*Dextrocardia (right-sided heart)*			Levocardia (left-sided heart) is abnormal only in situs inversus; right-sided heart, previous code # 10176	10186
		Misshapen					New
		Small	Microcardia				10188
		Three-chambered	Cor triloculare		Three-chambered heart with two atria and a ventricle or one atrium and two ventricles		10174
		Two-chambered	Cor biloculare		Two-chambered heart with an atrium and a ventricle		10173
	Left A-V valve	Absent				A-V = atrioventricular; also known as bicuspid/mitral	10167
		Large				A-V = atrioventricular; also known as bicuspid/mitral	10180
		Misshapen				A-V = atrioventricular; also known as bicuspid/mitral	10190
		Small				A-V = atrioventricular; also known as bicuspid/mitral	10196
	Papillary muscle	Absent					10168
	Pericardium	Blood-filled	Intrapericardial hemorrhage				New
		Fluid-filled	Hydropericardium; pericardial effusion		Accumulation of fluid in the sac that envelops the heart		10185
	Pulmonary valve	Absent					10169
		Large					10181
		Misshapen				Includes alterations in number of cusps	10191
		Small					10197
	Right A-V valve	Absent				A-V = atrioventricular; also known as tricuspid	10170
		Large				A-V = atrioventricular	10182
		Misshapen				A-V = atrioventricular; also known as tricuspid. Includes alterations in number of cusps	10192

Table 2 (*Continued*)

Region/organ/structure	Observation		Synonym or *related term*	Non-preferred Term	Definition	Note	Version 1 code no.
Heart *Cont.*		Small				A-V = atrioventricular; also known as tricuspid	10198
	Ventricle	Double outlet			Pulmonary trunk and aorta arise from same ventricle	Usually associated with right ventricle	New
		Large				See Ventricular chamber and Ventricular wall; only to be used when heart has not been cut for examination	New
		Small				See ventricular chamber and ventricular wall; only to be used when heart has not been cut for examination	New
	Ventricular chamber	Large					10183
		Small					10199
	Ventricular septum	Defect	*Incomplete VS, Membranous VSD, Muscular VSD, Perimembranous VSD*		An opening in the membranous and/or muscular septum between the ventricles	If known, membranous or muscular region may be defined (see 10187, 10193)	New
		Depression	*Diverticulum*		A non-patent localized recess in the membranous and muscular septum between the ventricles		New
		Misshapen					New
	Ventricular wall	Thick					10184
		Thin					New
Aorta	Aorta	Absent					New
		Atretic	Thread-like		Absence of patent communication between the ascending aorta and the ventricular mass which is usually grossly hypoplastic	May be total or partial	10200
		Dilated				May be generalized or localized	10201
		Double					10202
		Malpositioned				See also Aorta origin, malpositioned	10203
		Narrow				May be generalized or localized	10204
		Overriding			Biventricular origin of aorta		10205
	Aorta origin	Diverticulum	*Aneurism*				New
		Malpositioned			Outlet from heart displaced	See also Aorta, malpositioned	New
Aortic arch	Aortic arch	Absent					New
		Atretic	Thread-like			May be total or partial	10206
		Dilated				May be generalized or localized	10207
		Double					New
		High-arched			Aortic arch extends further upwards into neck		New
		Interrupted			Ascending aorta not connected to descending aorta		10208
		Malpositioned	*High-arched*			Use of *related term* 'high-arched' is recommended when arch extends further into neck	New
		Narrow				May be generalized or localized	10209

Table 2 (*Continued*)

Region/organ/structure	Observation		Synonym or *related term*	Non-preferred Term	Definition	Note	Version 1 code no.
Aortic arch *Cont.*		Retroesophageal				Aortic arch usually passes behind trachea as well as esophagus	10210
		Right-sided	Transposed				10211
		Supernumerary branch	Supernumerary artery		Additional artery arising from aortic arch		New
Artery	Artery	Supernumerary				General term for use if identity cannot be determined	New
Carotid artery	Carotid [may be further defined as common carotid, external, or internal]	Absent					10212
		Branching variation			Variation in the arrangement of arteries arising from carotid artery	May be further specified by location (position/laterality of branches)	New
		Dilated				May be generalized or localized	10213
		Malpositioned				See also Carotid artery origin, malpositioned	10214
		Narrow				May be generalized or localized	10215
		Retroesophageal				Artery may pass behind trachea as well as esophagus	10216
		Supernumerary branch	Supernumerary artery		Additional artery arising from carotid artery		New
	Carotid origin	Malpositioned			Origin (from aortic arch or innominate artery) of Carotid artery, malpositioned	See also Carotid artery, malpositioned. Includes carotid originating from aortic arch (i.e., absent innominate artery or common carotid trunk)	New
Ductus arteriosus	Ductus arteriosus	Absent					10217
		Atretic	Thread-like			May be total or partial. Normal after birth	New
		Dilated				May be generalized or localized	10218
		Malpositioned				See also Ductus arteriosus outlet, malpositioned	10219
		Narrow				Normal occurrence after birth	10220
		Patent	Persistent		Open and unobstructed Ductus arteriosus postnatally	Normal only in fetal period	10221
		Right-sided	Transposed				New
	Ductus arteriosus outlet	Malpositioned			Outlet (to aorta) from Ductus arteriosus, malpositioned	See also Ductus arteriosus, malpositioned	New
Great vessels		Fused vessel walls	Not separated				New
		Transposition			Origin of aorta from right ventricle and pulmonary trunk from left ventricle		10224
	Aorticopulmonary septum	Defect	Fistula, *Confluence*		Communication between ascending aorta and pulmonary trunk		10222
	Truncus arteriosus	Persistent	Truncus arteriosus communis		A common aortic and pulmonary trunk		10223
Innominate artery	Innominate artery (also known as brachiocephalic trunk)	Absent					New
		Dilated					10225
		Long					10226

Table 2 (*Continued*)

Region/organ/structure	Observation		Synonym or *related term*	Non-preferred Term	Definition	Note	Version 1 code no.
Innominate artery *Cont.*		Malpositioned				See also Innominate artery origin, malpositioned	10227
		Narrow					10228
		Short					10229
		Supernumerary branch	Supernumerary artery		Additional artery arising from innominate artery	May be more than one	New
	Innominate artery origin	Malpositioned			Origin (from aortic arch) of innominate artery, malpositioned	See also Innominate artery, malpositioned	New
Common carotid trunk	Common carotid trunk	Absent			Common trunk that divides into the innominate and left common carotid arteries	Common carotid trunk is often present in rabbits, but there is no similar structure in normal rats (see Appendix D for species differences)	New
		Dilated					New
		Long					New
		Malpositioned				See also Common carotid trunk origin, malpositioned	New
		Narrow					New
		Present				Abnormality in rats and mice (see Appendix D for species differences) See also Common carotid artery origin, malpositioned	New
		Short					New
		Supernumerary branch	Supernumerary artery		Additional artery arising from common carotid trunk		New
	Common carotid trunk origin	Malpositioned			Origin (from aortic arch) of common carotid trunk, malpositioned	See also Common carotid trunk, malpositioned	New
Pulmonary artery	Pulmonary artery	Absent					New
		Atretic					New
		Common origin			Common origin of two arteries from pulmonary trunk		New
		Dilated					New
		Malpositioned branch					10230
		Narrow					New
	Pulmonary artery origin	Malpositioned			Origin (from pulmonary trunk) of left/right pulmonary artery, malpositioned		New
Pulmonary trunk	Pulmonary trunk	Absent					New
		Atretic	Thread-like			May be total or partial	10233
		Dilated					10231
		Malpositioned				See also Pulmonary trunk origin, malpositioned	New
		Narrow					10232
		Retroesophageal				Pulmonary trunk may pass behind trachea as well as esophagus	10234
		Right-sided					10235
		Short					New
	Pulmonary trunk origin	Diverticulum	*Aneurism*				New
		Malpositioned			Outlet from heart displaced	See also Pulmonary trunk, malpositioned	New
Subclavian artery	Subclavian artery	Absent					10236
		Branching variation			Variation in the arrangement of arteries arising from subclavian artery	May be further specified by location (position/laterality of branches)	New

Table 2 (*Continued*)

Region/organ/structure	Observation		Synonym or *related term*	Non-preferred Term	Definition	Note	Version 1 code no.
Subclavian artery *Cont.*		Dilated					10237
		Malpositioned				See also Subclavian artery origin, malpositioned	10238
		Narrow					10239
		Retroesophageal				Subclavian artery may pass behind trachea as well as esophagus	10240
		Supernumerary					New
		Supernumerary branch	Supernumerary artery		Additional artery arising from subclavian artery		New
	Subclavian artery origin	Malpositioned			Origin (from aortic arch or innominate artery) of subclavian artery, malpositioned	See also Subclavian artery, malpositioned. Includes right subclavian artery originating from aortic arch (i.e., absent innominate artery)	New
Umbilical artery	Umbilical artery	Absent				See Appendix D for species differences	New
		Bilateral				Normal in rabbits; see Appendix D for species differences	New
		Malpositioned					New
		Transposed	*Left-sided*			See Appendix D for species differences	New
Trachea	Cartilage rings	Absent			Absence of all rings		New
		Branched					New
		Fused					New
		Indistinct				Seen in fixed fetuses; may be artifact	
		Interrupted					New
		Misaligned					New
		Reduced number					New
	Trachea	Absent					New
		Atretic				May be total or partial	New
		Collapsed lumen	Flat			May be generalized or localized	New
		Dilated				May be generalized or localized	New
		Diverticulum					New
		Fluid or other abnormal material				May be an artifact	New
		Malpositioned					10241
		Narrow				May be generalized or localized	10242
	Tracheoesophageal fistula				Communication between esophageal and tracheal lumen		10243
Esophagus	Esophagus	Absent					10244
		Atretic				May be total or partial	10245
		Dilated				May be generalized or localized	New
		Diverticulum					10246
		Fluid or other abnormal material				May be an artifact	New
		Malpositioned					10247
		Narrow				May be generalized or localized	10248

Table 2 (*Continued*)

Region/organ/structure	Observation		Synonym or *related term*	Non-preferred Term	Definition	Note	Version 1 code no.
Lung	Lung	Abnormal lobation			Global term for any abnormality	See Appendix D for species differences Further details of lobe(s) affected and change(s) observed may be specified in text It is recommended that this global term is not used if individual lobes are routinely described in the laboratory	10249
		Absent	Apulmonism				10250
		Discolored	*Infarct*			May be generalized or localized. Color and affected lobe(s) should be specified. 'Infarct' to be used only if confirmed histologically	10252
		Large					10253
		Malpositioned					10256
		Misshapen					10257
		Small					10259
		Unexpanded	Atelectasis		Incomplete expansion of lung; may be due to collapse of pulmonary alveoli at birth		10251
	Lobe [Affected lobe(s) should be specified; see also lung, abnormal lobation]	Absent					New
		Absent fissure					New
		Cyst			Fluid-filled sac		New
		Discolored	*Infarct*			May be generalized or localized. Color should be specified. 'Infarct' to be used only if confirmed histologically	New
		Fused	Not separated				New
		Large					New
		Malpositioned					New
		Misshapen					New
		Small					New
		Supernumerary				See Appendix D for species differences	10260
		Supernumerary fissure					New
		Unexpanded	Atelectasis		Incomplete expansion of lung lobe due to collapse of pulmonary alveoli at birth	May be generalized or localized to specific lobe(s)	New
Vein	Anterior (cranial) vena cava	Absent					10261
		Dilated				May be generalized or localized	10264
		Interrupted					10266
		Malpositioned					10268
		Narrow				May be generalized or localized	10270
	Azygos vein	Absent				See Appendix D for species differences	10262
		Bilateral	Supernumerary, Persistent		Azygos veins on both sides	See Appendix D for species differences. Indicate left or right, as appropriate	10272
		Malpositioned				Not to be used as alternative to 10273 Transposed azygos vein	New
		Persisting into abdomen					New
		Transposed	Right-sided, Left-sided		Azygos vein on opposite side from normal for species	See Appendix D for species differences	10273