# TERMINOLOGIA EMBRYOLOGICA

# Second Edition International Embryological Terminology

# **FIPAT**

The Federative International Programme for Anatomical Terminology A programme of the International Federation of Associations of Anatomists (IFAA)

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## **Preface**

This, second edition of *Terminologia Embryologica*, was developed from the published *Terminologia Embryologica* [1]. It has been expanded substantially in extent and comprehensiveness, with the inclusion of new terms from the fields of normal development, congenital anomalies and growth variations. This is in accordance with the FIPAT policy of enhancing clinical relevance. It incorporates new, relevant terms in clinical areas and in anatomical science fields such as embryology, neuroscience, stem cell biology and *in vitro* fertilisation.

The format is changed relative to that of the 2013 publication. The order of the early, more general sections was changed to a more consistent sequence, and the principal location of terms relating to early development was brought forward from the Stages section. As before, the main part consists of pure terms, the development of the early embryo and sections covering the later development of each system. The arrangement of terms follows the developmental sequence as closely as possible. The final part is chronological, indicating the times of appearance and prevalence of individual features and includes the Carnegie Stages.

The official FIPAT terms are in Latin. This enables translation into any vernacular, in the present instance English. The document is divided into five chapters (see below). New terms were introduced in all sections of TE, in particular: The CNS section was extended and revised in response to new molecular data. So were terms relating to stem cells, taking into account recent developments in that field. There was a major increase in the number of terms relating to congenital anomalies, the core clinical elements of TE. These are becoming increasingly relevant as imaging technologies and clinical genetics identify and classify progressively more of them. Many of these were taken from the excellent set of papers in *Elements of Morphology: Standard Terminology*, produced by a group of over 30 clinical geneticists [2-9], and a clinical text on dysmorphologies [10]. Only terms describing qualitatively unequivocal or quantitatively determinable anomalies [11] were included. The Latin terms have been reviewed by members of the FIPAT Latin Subcommittee.

#### References

- 1. FIPAT. 2013. Terminologia Embryologica. Stuttgart: Thieme.
- 2. Carey JC. 2009. Editorial comment: Editor's foreword to a special issue 'Elements of Morphology: Standard terminology'. Am J Med Genet Part A 149A:1
- 3. Allanson JE, Biesecker LG, Carey JC, Hennekam RCM. 2009. Elements of morphology: Introduction. Am J Med Genet Part A 149A:2-5.
- 4. Allanson JE, Cunniff C, Hoyme HE, McGaughran J, Muenke M, Neri G. 2009. Elements of morphology: Standard terminology for the head and face. Am J Med Genet Part A 149A:6-28.
- 5. Hall BD, Graham JM Jr., Cassidy SB, Opitz JM. 2009. Elements of morphology: Standard terminology for the periorbital region. Am J Med Genet Part A 149A:29-39.
- 6. Hunter A, Frias J, Gillessen-Kaesbach G, Hughes H, Jones K, Wilson L. 2009. Elements of morphology: Standard terminology for the ear. Am J Med Genet Part A 149A:40-60.
- 7. Hennekam RCM, Cormier-Daire V, Hall J, Méhes K, Patton M, Stevenson R. 2009. Elements of morphology: Standard terminology for the nose and philtrum. Am J Med Genet Part A 149A:61-76.
- Carey JC, Cohen MM Jr., Curry CJR, Devriendt K, Holmes LB, Verloes A. 2009. Elements of morphology: Standard terminology for the lips, mouth and oral region. Am J Med Genet Part A 147A:77-92.
- 9. Biesecker LG, Aase JM, Clericuzio C, Gurrieri F, Temple IK, Toriello H. 2009. Elements of morphology: Standard terminology for the hands and feet. Am J Med Genet Part A 147A:93-127.
- 10. Reardon W. 2015. The Bedside Dysmorphologist, 2<sup>nd</sup> ed. Oxford University Press.
- 11. Gripp KW, Slavotinek AM, Hall JG, Allanson JE. 2007. *Handbook of Physical Measurements*. 2<sup>nd</sup> ed. Oxford University Press.

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\* former Secretary to FCAT and subsequently FICAT, deceased

While the individuals acknowledged here gave expert advice, the final Terminology is the responsibility of FIPAT

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## **Contents**

#### Front-Matter

- Title
- License
- Preface
- Acknowledgements
- Contents
- User Guide

#### Part 1

Caput I Nomina generalia
Caput II Embryogenesis
Caput III. Ontogenesis
Caput IV Histogenesis generalis

#### Part 2

#### Caput V Organogenesis

- Systema skeletale
- Systema musculare
- Facies
- Systema digestorium

### Part 3

Caput V Organogenesis (continued)

- Systema respiratorium
- Systema urinarium
- Systemata genitalia
- Coeloma et septa
- Glandulae endocrinae
- Systema cardiovasculare
- Systema lymphoideum

#### Part 4

Caput V Organogenesis (continued)

- Systema nervosum
- Organa sensuum
- Integumentum commune

Caput VI Adnexa embryonica et fetalia

#### Part 5

Caput VII Notatio temporum ontologicorum Caput VIII Nomina dysmorphica

Ch. 1 General terms

Ch. 2 Embryogenesis

Ch. 3 Ontogenesis

Ch. 4 General histogenesis

#### Ch. 5 Organogenesis

- Skeletal system
- Muscular system
- Face
- Alimentary system

#### Ch. 5 Organogenesis (continued)

- Respiratory system
- Urinary system
- Genital systems
- · Coelom and septa
- Endocrine glands
- Cardiovascular system
- Lymphoid system

#### Ch. 5 Organogenesis (continued)

- Nervous system
- Sense organs
- The integument

# Ch. 6 Developmental adnexa

## Ch. 7 Temporal stages of development

Ch. 8 Dysmorphia terms

# **User Guide**

In accordance with the decision at the Istanbul meeting of FIPAT (2015), and as with the other FIPAT terminologies, a new, 6-column format has been adopted. The six columns comprise the official Latin term, Latin synonym(s) where relevant, English (UK and US) terms and English synonym(s) where relevant. The final column includes references to Endnotes and eponyms. The former are placed in a separate section at the end of each Part.

Each term is in the singular, except where it is a heading of a list, in which case the plural is appropriate. A proper name between the symbols  $\S$  and  $\S$  indicates that the name is part of an eponym associated with the term in the same row. The acronym IVF indicates features, details of which have been elucidated in *in vitro* fertilization (IVF) procedures. A note of "In part" in the final column indicates that the contribution of an entity to the structure in question is partial. In the urogenital systems, female derivatives are identified by  $\S$  and male derivatives by  $\circlearrowleft$ .

The order of terms follows development naturally for each system. Indenting and styles of heading are used to indicate the relations of terms to one another, as follows:

Most important term Heading 1
Heading 2
Heading 3
HEADING 4
Heading 5
Least important heading 6
Non-term heading
Term
Term
Term

Abbreviations in Latin terms are used as follows:

Singular	Latin	English	Plural	Latin	English
A.	Arteria	Artery	Aa.	Arteriae	Arteries
Lig.	Ligamentum	Ligament	Ligg.	Ligamenta	Ligaments
М.	Musculus	Muscle	Mm.	Musculi	Muscles
N.	Nervus	Nerve	Nn.	Nervi	Nerves
R.	Ramus	Branch	Rr.	Rami	Branches
V.	Vena	Vein	Vv.	Venae	Veins