

Homunculus ^[1]

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The term *homunculus* is Latin for “little man.” It is used in [neurology](#) ^[5] today to describe the map in the brain of sensory neurons in each part of the body (the somatosensory homunculus). An early use of the word was in the 1572 work by Paracelsus regarding forays into alchemy, *De Natura Rerum*, in which he gave instructions in how to create an infant human without [fertilization](#) ^[6] or [gestation](#) ^[7] in the [womb](#) ^[8]. In the history of [embryology](#) ^[9], the homunculus was part of the Enlightenment-era theory of generation called preformationism. The homunculus was the fully formed individual that existed within the germ cell of one of its parents prior to [fertilization](#) ^[6] and would grow in size during [gestation](#) ^[7] until ready to be born.

The origin of the homunculus concept of a pre-existing [fetus](#) ^[10] is usually credited to Dutch telescopicist and microscopist [Nicolaas Hartsoeker](#) ^[11]. He receives this credit largely because it was his sketch in the 1694 *Essai de Dioptrique* of a homunculus in a [sperm](#) ^[12] cell that illustrated the concept most clearly. However, the Italian anatomist Marcello Malpighi proposed in 1673 that the entire structure of the embryo was present in the [egg](#) ^[13] from the very beginning, and that the [gestation](#) ^[7] period involved the growth and unfolding of that pre-existing structure. Around the same time, the French metaphysician [Nicolas Malebranche](#) ^[14] discussed the idea of *emboîtement*, meaning encasement, for which preformationism is infamous. *Emboîtement* describes not just a homunculus in the [egg](#) ^[13] cell or [sperm](#) ^[12] cell, but an infinite train of homunculi stretching back to Adam and Eve.

While the imagery of the homunculus is inextricably tied to the theory of preformationism in modern thought, the idea was not taken literally by all of the proponents of the theory. [Albrecht von Haller](#) ^[15] and [Charles Bonnet](#) ^[16] discussed a type of preformed embryo in which the parts were already in place but grew and changed dramatically over the course of [gestation](#) ^[7]; a figurative homunculus rather than a literal one. The idea that a homunculus did exist within parental [sperm](#) ^[12] or eggs was often used derisively by contemporary critics of preformationism to point out its absurdity.

However, neither the critics nor the supporters of preformationism ever spoke of the concept using the term homunculus. The first use of the term homunculus to describe the little preformed man is difficult to document. Anton Leeuwenhoek, the Dutch microscopist famous for pioneering the use of the [microscope](#) ^[17], used the French “*petit l’homme*” in his work, and Hartsoeker referred to his homunculus drawing as “*petit l’enfant*.” According to [Clara Pinto-Correia](#) ^[18] in *The Ovary of Eve* ^[19], the man in the germ cell may not have been actually called a homunculus until F. J. Cole used the term in this manner in his 1930 *Early Theories of Sexual Generation* ^[20]. In histories of [embryology](#) ^[9] since, the word homunculus is tightly intertwined with preformationism.