



## Gene nomenclature and style

Please review the general rules provided below and ensure that the gene and protein nomenclature used throughout your article adheres to these guidelines and is current, in accordance with Entrez Gene ([www.ncbi.nlm.nih.gov/sites/entrez](http://www.ncbi.nlm.nih.gov/sites/entrez)).

## Official gene symbols

“Official Symbols” for gene and protein names and symbols are preferred, although “Other Aliases” listed in Entrez Gene will be accepted. The Editors acknowledge that exceptions to these guidelines exist, and these will be considered on a case-by-case basis.

## Italicization

Do italicize

- Gene symbols (e.g., *PPARG*)
- Genotypes (e.g., *PPARG*<sup>-/-</sup>)
- mRNAs (e.g., *PPARG* mRNA)

Do NOT italicize

- Gene names (e.g., “the peroxisome proliferator–activated receptor  $\gamma$  gene”)
- Gene products (e.g., “the gene encoding PPAR $\gamma$ ”)
- Phenotypes
- cDNAs

## Gene symbol style

Do NOT use

- Superscripts or subscripts (e.g., *CB*<sup>1</sup>, not *CB*<sub>1</sub> or *CB*<sup>1</sup>)
- Hyphens (e.g., *TNFA*, not *TNF-A*); an exception is *Caenorhabditis elegans* gene symbols
- Greek letters: revise as Latin alphabet equivalents (e.g., *TNFA*, not *TNF $\alpha$* ; *PPARG*, not *PPAR $\gamma$* )
- Roman numerals: revise as Arabic numerals (e.g., *ABCG1*, not *ABCGI*)

## Capitalization

Capitalization of gene and protein symbols should be styled according to species:

Species	Gene/protein name <sup>A</sup>	Gene symbol	Protein symbol
Humans/higher mammals			
Humans ( <i>Homo sapiens</i> )	peroxisome proliferator–activated receptor $\gamma$	<i>PPARG</i>	PPAR $\gamma$
Non-human primates	peroxisome proliferator–activated receptor $\gamma$	<i>PPARG</i>	PPAR $\gamma$
Rodents			
Mouse ( <i>Mus musculus</i> ), rat ( <i>Rattus norvegicus</i> )	peroxisome proliferator–activated receptor $\gamma$	<i>Pparg</i>	PPAR $\gamma$
Amphibians and fish			
Frog ( <i>Xenopus laevis</i> , <i>X. tropicalis</i> )	peroxisome proliferator–activated receptor $\gamma$	<i>pparg</i>	PPAR $\gamma$
Zebrafish ( <i>Danio rerio</i> )	engrailed 2b	<i>eng2b</i>	Eng2b
Invertebrates			
Fly ( <i>Drosophila melanogaster</i> )	hedgehog	<i>hh</i>	HH
Worm ( <i>Caenorhabditis elegans</i> )	dumply-5	<i>dpy-5</i>	DPY-5
Unicellular microorganisms			
Bacteria (most genera)	acetylornithine deacetylase	<i>argA</i>	ArgA
Budding yeast ( <i>Saccharomyces cerevisiae</i> )	nicotinate phosphoribosyltransferase	<i>NPT1</i>	Npt1

<sup>A</sup>Gene and protein names start with a lower-case letter unless they begin with a person’s name (describing a disease/phenotype) or a capitalized abbreviation.