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Pangenesis: visible and dark matter from a common origin

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The similarity of the visible and the dark matter relic abundances suggests related production mechanisms. This is possible if the dark matter density is -analogously to the visible matter- due to an asymmetry in a dark particle number which is conserved at low energies. In pangenesis, the visible and dark asymmetries are produced jointly via Affleck-Dine dynamics, and they compensate each other under an always conserved generalised baryon number. Supersymmetry, GeV-scale dark-matter mass (favoured by current direct detection experiments) and a Z' boson with a significant invisible width into the dark sector would constitute evidence for this mechanism.

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