How IQ, bones and metabolism are genetically linked

A gene that regulates bone growth and muscle metabolism in mammals may take on an additional role as a promoter of brain maturation, cognition and learning in human and nonhuman primates, according to a new study led by neurobiologists at Harvard Medical School.

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The research reveals that *osteocrin*—a gene found in the skeletal muscles of all mammals and well-known for its role in bone growth and muscle function—is completely turned off in rodent brains yet highly active in the brains of nonhuman primates and humans.

Notably, *osteocrin* was found predominantly in cells of the neocortex—the most evolved part of the primate brain, which regulates sensory perception, spatial reasoning and higher-level thinking and language in humans.

The gene's marked presence in an area of the brain responsible for higher-level function and thought, the researchers said, suggests a possible role in the development of cognition….

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"We have uncovered what we believe is a critical clue into the evolution of the human brain, one that gives us a glimpse into the genetic mechanisms that may account for differences in cognition between mice and humans," said senior investigator Michael Greenberg, the Nathan Marsh Pusey Professor of Neurobiology….

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