



Glucose-dependent insulintropic polypeptide (GIP) directly affects collagen fibril diameter and collagen cross-linking in osteoblast cultures.

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Titre	Glucose-dependent insulintropic polypeptide (GIP) directly affects collagen fibril diameter and collagen cross-linking in osteoblast cultures.
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Résumé en anglais	<p>Glucose-dependent insulintropic polypeptide (GIP) is absolutely crucial in order to obtain optimal bone strength and collagen quality. However, as the GIP is expressed in several tissues other than bone, it is difficult to ascertain whether the observed modifications of collagen maturity, reported in animal studies, were due to direct effects on osteoblasts or indirect through regulation of signals originating from other tissues. The aims of the present study were to investigate whether GIP can directly affect collagen biosynthesis and processing in osteoblast cultures and to decipher which molecular pathways were necessary for such effects. MC3T3-E1 cells were cultured in the presence of GIP ranged between 10 and 100pM. Collagen fibril diameter was investigated by electron microscopy whilst collagen maturity was determined by Fourier transform infra-red microspectroscopy (FTIRM). GIP treatment resulted in dose-dependent increases in lysyl oxidase activity and collagen maturity. Furthermore, GIP treatment shifted the collagen fiber diameter towards lower value but did not significantly affect collagen heterogeneity. GIP acted directly on osteoblasts by activating the adenylyl cyclase-cAMP pathway. This study provides evidences that GIP acts directly on osteoblasts and is capable of improving collagen maturity and fibril diameter.</p>
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Liens

- [1] <http://okina.univ-angers.fr/aleksandra.mieczkowska/publications>
- [2] [http://okina.univ-angers.fr/publications?f\[author\]=4629](http://okina.univ-angers.fr/publications?f[author]=4629)
- [3] <http://okina.univ-angers.fr/daniel.chappard/publications>
- [4] <http://okina.univ-angers.fr/guillaume.mabileau/publications>
- [5] [http://okina.univ-angers.fr/publications?f\[keyword\]=1167](http://okina.univ-angers.fr/publications?f[keyword]=1167)
- [6] [http://okina.univ-angers.fr/publications?f\[keyword\]=7441](http://okina.univ-angers.fr/publications?f[keyword]=7441)
- [7] [http://okina.univ-angers.fr/publications?f\[keyword\]=7196](http://okina.univ-angers.fr/publications?f[keyword]=7196)
- [8] <http://okina.univ-angers.fr/publications/ua9247>
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