



Aluminum and iron can be deposited in the calcified matrix of bone exostoses.

Submitted by Guillaume Mabillean on Tue, 09/29/2015 - 08:27

Titre	Aluminum and iron can be deposited in the calcified matrix of bone exostoses.
Type de publication	Article de revue
Auteur	Chappard, Daniel [1], Mabillean, Guillaume [2], Moukoko, Didier [3], Henric, Nicolas [4], Steiger, Vincent [5], Le Nay, Patrick [6], Frin, Jean-Marie [7], De Bodman, Charlotte [8]
Editeur	Elsevier
Type	Article scientifique dans une revue à comité de lecture
Année	2015
Langue	Anglais
Date	2015 Sep 16
Pagination	174-9
Volume	152
Titre de la revue	J Inorg Biochem
ISSN	1873-3344

Résumé en anglais

Exostosis (or osteochondroma) is the most common benign bone tumor encountered in children and adults. Exostoses may occur as solitary or multiple tumors (in the autosomal syndromes of hereditary multiple exostoses). Exostoses are composed of cortical and medullary bone covered by an overlying hyaline cartilage cap. We have searched iron (Fe) and aluminum (Al) in the matrix of cortical and trabecular bone of 30 patients with exostosis. Al^{3+} and Fe^{3+} are two cations which can substitute calcium in the hydroxyapatite crystals of the bone matrix. The bone samples were removed surgically and were studied undecalcified. Perls' Prussian blue staining (for Fe) and solochrome azurine B (for Al) were used on the histological sections of the tumors. Al^{3+} was detected histochemically in 21/30 patients as linear bands deposited by the osteoblasts. Fe^{3+} was detected in 10 out of these 21 patients as linear bands in the same locations. Fe^{3+} and Al^{3+} were not identified in the bone matrix of a control group of 20 osteoporotic patients. Energy X-ray Dispersive Spectrometry failed to identify Fe and Al in bone of these tumors due to the low sensitivity of the method. Wavelength Dispersive Spectrometry identified them but the concentrations were very low. Histochemistry appears a very sensitive method for Fe^{3+} and Al^{3+} in bone. The presence of these two metals in the exostoses advocates for a disturbed metabolism of osteoblasts which can deposit these metals into the bone matrix, similar to which is observed in case of hemochromatosis with Fe^{3+} .

URL de la notice	http://okina.univ-angers.fr/publications/ua14069 [9]
DOI	10.1016/j.jinorgbio.2015.09.008 [10]
Autre titre	J. Inorg. Biochem.

Identifiant
(ID) PubMed 26404568 [11]

Liens

- [1] <http://okina.univ-angers.fr/daniel.chappard/publications>
- [2] <http://okina.univ-angers.fr/guillaume.mabileau/publications>
- [3] [http://okina.univ-angers.fr/publications?f\[author\]=23949](http://okina.univ-angers.fr/publications?f[author]=23949)
- [4] [http://okina.univ-angers.fr/publications?f\[author\]=23950](http://okina.univ-angers.fr/publications?f[author]=23950)
- [5] [http://okina.univ-angers.fr/publications?f\[author\]=23951](http://okina.univ-angers.fr/publications?f[author]=23951)
- [6] [http://okina.univ-angers.fr/publications?f\[author\]=23952](http://okina.univ-angers.fr/publications?f[author]=23952)
- [7] [http://okina.univ-angers.fr/publications?f\[author\]=23953](http://okina.univ-angers.fr/publications?f[author]=23953)
- [8] [http://okina.univ-angers.fr/publications?f\[author\]=23954](http://okina.univ-angers.fr/publications?f[author]=23954)
- [9] <http://okina.univ-angers.fr/publications/ua14069>
- [10] <http://dx.doi.org/10.1016/j.jinorgbio.2015.09.008>
- [11] <http://www.ncbi.nlm.nih.gov/pubmed/26404568?dopt=Abstract>

Publié sur *Okina* (<http://okina.univ-angers.fr>)