The final objectives of this study are to perform a visual ~~observation~~ evaluation of the crystallization mode ~~style~~ of Octacalcium phosphate [OCP: Ca8(PO4)4(HPO4)2・5H2O] ~~o~~in porous molded bodies made from biocompatible polymers and the bonding state of biocompatible polymers and OCP crystal interfaces, and a evaluation of the mechanical properties of biocompatible polymers crystallized by OCP, to gain foundational knowledge on the mechanism for forming bone and bone-like ~~bone~~ graft materials. In the present study~~Here~~, as it was a 1-year investigation, we selected gelatin, which is a~~has~~ biocompatible polymer~~s~~ and for which the protocol for the preparation of porous bodies of cancellous bones ~~porous body preparation method~~ has already been established, and we focused on the evaluation of this OCP formation mechanism. This mechanism is an essential part of calcification in bone formation ~~calcification~~ and is of pivotal importance for bones acquiring high mechanical strength in bones and degree ~~manifestations~~ of flexibility. Not only this、it is also essential for the preparation of the high-performance~~functionality~~ biomaterials to which it is applied. Therefore, by combining the two evaluations of the evaluation of the crystal interface on a ~~and~~ micro-scale level with that~~, and evaluation~~ of the mechanical strength of macro-scale bodies form~~ed~~~~ation~~, mutual feedback could be provided on the influence that micro-generated phenomena have on bulk, we could obtain knowledge over a wide range not possible with a unidirectional investigation.

OCP is a main inorganic component of young bones, and is mainly composed of highly biocompatible materials. Moreover, ~~Not only that.~~ a~~A~~s this unique crystalline structure is able to carry drugs inside the crystal structure, it shows promise as a raw material for new combination medical materials. On the other hand, with the use of OCP and ~~, and above all, with~~ OCP incorporating or carrying pharmaceutical components~~drug-carrying OCP itself~~, it has been~~is~~ difficult to obtain molded bodies with the appropriate size and strength to be utilized as a bone graft material. When OCP powder is simply kneaded into biocompatible polymers, it does not become a material with the flexibility of bone, so the crystallization process on the bone is very important. Controlling OCP crystallization promises to enable preparation of biomaterials with “suppleness” like bone.

Comment [Checker1]: Level 2 [Redundancy] [Language] Redundancy issue rectified by deleting unnecessary word

Comment [Checker2]: Level 2 [Technical Word Choice] [SME] More appropriate technical word choice was used.

Comment [Checker3]: Level 2 [Mistranslation] Mistranslation issue was rectified

Comment [Checker4]: Level 2 [Technical Word Choice] [SME] Accurate technical word choice was used as per the literature.

Comment [Checker5]: Level 2 [Omission] Omission issue was rectified