受験番号：14IPB004

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[問１] 次の背景技術の記載を翻訳してください。
[Background Art]
Immune responses such as antibody-producing reaction are protective mechanisms for the living body to eliminate foreign objects such as microorganisms. On the other hand, the living body also has immune tolerance mechanisms for preventing immune reactions against self-derived antigens. Immune tolerance has two major mechanisms: central immune tolerance and peripheral immune tolerance. Self-reactive T cells are removed by apoptosis in the thymus (central immune tolerance). However, some self-reactive T cells escape from being removed in the thymus and emerge in the periphery, where regulatory T cells suppress the activation of such self-reactive T cells, thereby preventing elicitation of autoimmune response (peripheral immune tolerance) (Non-Patent Document 1)

Recently, it has been reported that antibody production was successfully achieved when knockout mice not expressing the gene of an antigen of interest were used for immunization in order to avoid central immune tolerance (Non-Patent Document 2). However, the production of knockout mice requires a lot of time, effort, and cost. In addition, some genes cannot be used in many cases because their knockout is embryonic lethal for mice.

[問２] 次の実施形態の記載を英訳してください。

[Mode for Carrying Out the Invention]
Next, the second step is carried out to grow sprouts from the seeds germinated in the germination step. In this step, light conditions are used. Light conditions refer to exposing germinated seeds and sprouts to light of an intensity enough for them to perform photosynthesis. The seeds and sprouts are usually exposed to light of 2000 lux or more, and preferably 5000 lux or more. Under light conditions, light may be provided continuously or intermittently. For example, this sprout-growing step can be carried out outside. However, the light provided under light conditions is preferably continuous. The light source may be an artificial source such as an electric light, or may be sunlight.

In the sprout-growing step, it is possible to continue to use the water medium that has been used in the germination step, or use a newly prepared one with modified components.

[問３] 次の実施例の記載を英訳してください。

[Examples]
When the ANI7A strain was cultured for 60 days while shaking in the L-type test tube (diameter: 18 mm) sealed with a silicone plug, it degraded 8% of AN and 21% of PHE. When the ANI7A strain was cultured for 34 days while shaking in the test tube (diameter: 18 mm) with a screw cap, it degraded 22% of PHE. In addition, the ANI7P strain cultured under the latter conditions degraded 19% of PHE, which was comparable to the degradation by the ANI7A strain. Meanwhile, the microbial consortium consisting of both strains cultured under the latter conditions degraded 23% of PHE, which was not significantly different from the degradation by each individual strain. Thus, the consortium consisting of the two strains did not show accelerated PHE degradation. Although the ANI7A strain and the ANI7P strain were different in colony color, they were considered to be the same Sphingomonas species according to the molecular phylogenetic analysis. This might be a reason why they did not show a significant difference in the PHE degradation ability.

[問４] 次の特許請求の範囲を米国出願用として翻訳してください。

Claims
1. A tissue-engineered bone composition comprising a self-assembling amphiphilic peptide.
2. The composition of claim 1, wherein the amphiphilic peptide forms a peptide hydrogel.
3. The composition of claim 1 or 2, further comprising platelet-rich plasma (PRP) or a growth factor.
4. The composition of any one of claims 1 to 3, further comprising a cell having a bone-forming ability or a mesenchymal stem cell (MSC).
5. The composition of any one of claims 1 to 4, further comprising an extracellular matrix (ECM) protein.
6. The composition of any one of claims 1 to 5, which is used for recovering, restoring, or regenerating a bone tissue or a periodontal tissue.