★★★ ＜第38回知的財産翻訳検定試験【第20回和文英訳】＞ ★★★
≪１級課題 –バイオテクノロジー≫

【問 1】
In recent years, damage caused by being eaten or debarked by wild animals in agriculture and forestry, such as damage to tree branches or trunks caused by being eaten or debarked as well as damage to crops caused by being eaten by wild animals such as sika deer, Japanese serow, Yezo sika deer, rabbits, mice, bears, and wild boars, have been steadily increasing. Measures against these wild animals include exterminating by poisoning or by hunting, but this has problems such as the work being highly dangerous, and the environmental burden being high.

To solve these problems, substances that have a repellent effect on wild animals (i.e., repellents for pest animals) are used. Various repellents for pest animals that have odors or tastes which are unpleasant to wild animals have been proposed; for example, substances derived from plants such as chili peppers, mustard, wasabi, and essential oils, synthetic substances such as naphthalene, rhubafuran, and denatonium, and excrement and urine of animals that are natural enemies of the wild animals are used (for example, see Patent Documents 1 to 3). These repellents for pest animals are dispersed on farmland, forests and surrounding areas to prevent wild animals from approaching such areas.

【問 2】
The cookies of the present invention are allergen-free cookies made using rice flour and avocado as materials. Cases of food allergy due to rice and avocado are very few as compared to gluten, soy protein, and almonds. Therefore, even those who have a high risk of developing food allergies can eat the cookies of the present invention relatively safely. Furthermore, because of the high quality protein and fat derived from avocados, the cookies have good formability in spite of being a gluten-free cookie dough made using rice flour, and furthermore, cookies with a crispy texture and savory flavor can be obtained by baking. The term “crispy texture” of the cookies means that they are brittle and easily crumble and that they are

pleasant to bite when chewing.

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The rice as material for rice flour may be brown rice, germinated rice, or white rice. The degree of milling of white rice is not particularly limited, and may be approximately 50%, or 90% or more. It may also be germinated brown rice.

【問 3】

Examining the tissue specific expression of the GIC1 to GIC5 genes in wild-type rice (Nipponbare) using RT-PCR revealed that all of the genes were highly expressed in the leaves and stems, while hardly being expressed in the roots and calli. Among the GIC1 to GIC5 genes, it was found that the GIC1 transcript is alternatively spliced to produce two types of mRNA. Here, the longer transcript is referred to as GIC1L (accession number of full-length cDNA (fl-cDNA): AK120314) and the shorter transcript is referred to as GIC1S (AK072346). Note that, when simply recited as GIC1, this shall refer to GIC1L. The GIC1L mRNA (SEQ ID NO: 1) is generated upon intron 1 being excised from the GIC1 mRNA precursor. GIC1S mRNA encodes a protein lacking the N-terminal B-box zinc finger domain. GIC1S mRNA was presumed to be a product of excision of the sequence containing the B-box as an intron by splicing via intramolecular homologous recombination at the 8 base overlapping sequence 5'-TCGTCGTG-3' starting at the position that is 12 bases 5' upstream of the putative start codon of the GIC1L mRNA and the position that is 14 bases 5' upstream of the 130th ATG codon (Fig. 3).

【問 4】

[Claim 1]

A method for producing a pluripotent stem cell spheroid, comprising:

treating differentiated fibroblasts with a serine protease to separate the fibroblasts; statically culturing the separated fibroblasts at a high cell density of $1x10^5$ cells/cm^2 to $7x10^6$ cells/cm^2 or $1x10^6$ cells/ml to $2x10^7$ cells/ml,

in a non-cell adhesive cell culture vessel, in D-MEM medium comprising glucose and fetal bovine serum or an equivalent medium thereof, while supplying CO_2, and at a temperature of 30 to 40°C, without using one or more of any of the stimulating factors selected from the group consisting of hormones, growth factors, pluripotency-inducing proteins, and pluripotent cell-inducing factors, to form a spheroid; and
allowing 95% or more of the cells constituting said spheroid to express the pluripotent stem cell markers of OCT3/4, SOX2, NANOG, PAR4, TRA-1-60, TRA-1-81, SSEA-3, SSEA-4, and ALP.

[Claim 2]
The method for producing a pluripotent stem cell spheroid of claim 1, wherein the diameter of the spheroids is 0.5 to 3 mm.