

★★★ <第30回知的財産翻訳検定試験【第16回和文英訳】> ★★★  
《 1 級課題 -バイオテクノロジー- 》

【問 1】

Swine that have been infected with the virus in the field develop symptoms irrespective of their breed, age, and sex, and the season, and many of the infected swine die. In Japan, classical swine fever occurred for the first time in 1888; thereafter, outbreaks recurred nationwide and caused great damage to pig farming. Although the application of live vaccines has suppressed epidemics of the disease since 1969, sporadic occurrence of the disease has been observed.

The types of symptoms include: a diarrhea type in which bovines show symptoms of diarrhea with bloody stool, fever, and anorexia; a fever type characterized by diphasic fever and leucopenia; a mucosal disease type in which bovines show cold-like symptoms such as fever, anorexia, cough, and sialorrhea in the early stage of infection, followed by watery diarrhea and dehydration, leading to death in 1-3 weeks; and a fetal infection type in which fetuses are infected in pregnant bovines, which causes stillbirth or results in termination of pregnancy due to death of the fetuses. In Japan, bovine viral diarrhea-mucosal disease occurs nationwide and causes great damage to cow farming.

【問 2】

Primers which hybridize specifically to a partial region under such conditions preferably have a nucleotide sequence completely complementary to the partial region. However, even if primers having a sequence in which 10% or less of the nucleotides are substituted are used, in general, they hybridize to the target partial region and amplification occurs in many cases.

As such, forward primers that specifically hybridize to a partial region within the region of nucleotides 1 to 3476 in the nucleotide sequence shown in SEQ ID NO: 1 include primers consisting of a nucleotide sequence of 15 or more contiguous nucleotides, preferably 18 or more contiguous nucleotides within the region of nucleotides 1 to 3476 in the nucleotide sequence shown

in SEQ ID NO: 1, primers consisting of a nucleotide sequence in which 10% or less of the nucleotides in said nucleotide sequence are substituted, and primers having an additional sequence on the 5' terminus of these primers. That is, the forward primer may have, in the 3' terminus of the primer, a nucleotide sequence of 15 or more contiguous nucleotides within the region of nucleotides 1 to 3476 in the nucleotide sequence shown in SEQ ID NO: 1, or a nucleotide sequence in which 10% or less of the nucleotides in said nucleotide sequence are substituted.

【問 3】

After the culture was completed, the medium in each well was replaced with sclerostin-free medium. Then a portion of the cells attached to the bottom of each well was stripped off in a constant width using a pipet tip. After the stripping, to remove floating cells including the stripped cells, the medium in each well was replaced with the sclerostin-free medium and the dishes were incubated at 37°C in the presence of 5% CO<sub>2</sub>. At the start of the culture after the stripping, at five hours after the start of the culture, and at seven hours after the start of the culture, images of the spaces formed by the stripping were captured under a phase-contrast microscope. Changes in areas of the spaces were quantitated by measuring, with Image J software, the areas of the spaces in the captured images. A resulting value was obtained by subtracting the area after five hours from the area at the start of the culture for each well. The average and standard error for each group were calculated using the resulting value for each well. The differences between two groups were tested using Student's *t*-test.

【問 4】

Claim 1. A transgenic fish comprising, in the genome thereof, a promoter that requires a ligand-bound AhR/ARNT complex as a transcription factor for transcription initiation, and DNA encoding a marker protein, wherein said DNA encoding the marker protein is under control of said promoter and wherein said marker protein emits a visually detectable signal.

Claim 2. The transgenic fish of claim 1, wherein said fish is *Oryzias*.

Claim 5. The transgenic fish of any one of claims 1 to 4, wherein expression of DNA encoding an endogenous protein that degrades or inhibits said ligand is downregulated.

Claim 6. A method of detecting or quantifying a substance to be detected, said method comprising placing the transgenic fish of any one of claims 1 to 5 in a liquid to be subjected to the detection, detecting said signal visually, and detecting or quantifying the substance to be detected based on the results thereof.

Claim 8. The method of claim 6 or 7, wherein the transgenic fish comprises an *Oryzias* egg and said placing is carried out using said *Oryzias* egg that is 5 days or older after fertilization.