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<b>Edited publication and publication date</b>	06 June 2021
<b>Edited publication and publication date</b>	12 January 2021
<b>Date of first publication on IRRI website</b>	03 December 2020
<b>Title of the Application</b>	Nucleic Acid Sequences for Conferring High Yield in Rice and Methods of Using Sam (hereinafter “OsTPR Patent”)
<b>Application Date</b>	PCT: 21 June 2020 Provisional: 21 June 2019
<b>Application Number</b>	PCT: PCT/IB2020/055840 Provisional: 62/864,548
<b>Publication Number</b>	WO/2020/255099
<b>Publication Date</b>	24 December 2020
<b>Publication Link in the WIPO Website</b>	<a href="https://patentscope.wipo.int/search/en/detail.jsf?docId=WO2020255099">https://patentscope.wipo.int/search/en/detail.jsf?docId=WO2020255099</a>

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## BRIEF BACKGROUND

Screening a large number of diversity accessions from “in trust” germplasm (*ex situ* germplasm collections held by CGIAR genebanks), IRRI has identified a candidate gene, “OsTPR” that causes grain yield increase via higher upper secondary rachis branches, with no loss in grain quality - thus overcoming the traditional trade-off between yield and grain quality.

Superior naturally-occurring haplotypes of OsTPR were identified. Those superior haplotypes are expected to add value to breeding programs and ultimately to rice farmers and consumers, with new elite varieties that deliver increased yield and good grain quality. While this innovation has great potential, there is still a substantial amount of research and development needed before this innovation can ultimately reach farmers at a scale and scope that will deliver significant impact, in a range of specific rice varieties that would be adapted to different agro climatic conditions.

## **NEED FOR FURTHER INVESTMENT**

IRRI does not have the requisite resources to accelerate such development at the needed speed and scale. IRRI's motivation in seeking the patent is to create incentives for other organizations to partner with us, and to contribute the requisite financial, technological, and technical investments to:

- A) invest in further breeding to produce different varieties that contain the best haplotypes in different genetic background;
- B) invest in further breeding to combine the OsTPR trait with other naturally-occurring traits that improve grain quality - especially when such traits would result in yield penalty when introduced in elite varieties;
- C) test these new OsTPR varieties for yield and grain quality; and
- D) select the best varieties and scale up their use by rice farmers, specifically including smallholder farmers in developing countries in order to contribute to global food and nutrition security.

## **PATENT APPLICATION**

When patents are granted, IRRI will be able to provide partners and investors limited exclusivity rights to exploit the invention commercially. Once the technology is ready for utilization at scale, IRRI will continue reaching additional partners who can distribute and disseminate the innovation at the required scale and scope across various territories.

IRRI's licensing strategies are designed to provide royalty-free licenses to NARES partners, and limited-exclusive or non-exclusive commercial licenses for private companies, with a commitment to impact assessment and impact acceleration. We ensure that our patent applications, and the patent claims, do not extend to farmers access and use of landraces per se. All materials used to develop the patent are from the in-trust collection of the multilateral system (MLS). IRRI will continue to comply with all obligations of the SMTA including the benefit-sharing, where applicable.

Future licensees will be bound by the benefit-sharing obligations under the SMTA. In addition, and as per IRRI's policy, royalties paid by future licensees to IRRI shall be shared on a voluntary basis with the benefit-sharing fund of the [International Treaty for Plant Genetics for Food and Agriculture](#).

As a non-profit international organization, IRRI promotes responsible technology transfer and intellectual property management in accordance with its [Intellectual Property and Commercialization Policy \(IP&C Policy\)](#) and with the [CGIAR Principles on the Management of Intellectual Assets \("IA Principles"\)](#), This patent application conforms with the IA Principles

concerning intellectual property applications, i.e., necessary for the further improvement of the innovation or to enhance the scale or scope of impact on target beneficiaries, in furtherance of the CGIAR Vision.

### **CURRENT STATUS**

In June 2020, a PCT application was filed. The application focuses on the importance of pre-breeding evidence of introgressing the OsTPR trait in different genetic backgrounds. Moreover, this patent application will allow us to explore partnerships for research, both from the public and private sectors. IRRI intends to develop and release improved varieties which are superior in yield, grain and nutritional quality, and in the long run will benefit the smallholder farmers.