

INDIAN COUNCIL OF AGRICULTURAL RESEARCH, NEW DELHI
National Agricultural Science Fund (NASF)
Krishi Anusandhan Bhawan- I, Pusa
New Delhi-110012

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Expression of Interest for Research on CRISPR/Cas in Rice

The ICAR- National Agricultural Science Fund invites, Expression of Interest (EOI) from Public and Private Organizations engaged in agriculture research in India and abroad to participate in the implementation of a project on Application of CRISPER/Cas technology in rice research. The foreign organizations need to have a full-fledge research centre in India.

For details, please visit the websites www.icar.org.in . The last date for submission of EOI is 30 days from the date of publication of the advertisement.

(ADG, NASF)

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Expression of Interest
For
Participation of the public and private sector organisations engaged in agriculture
research in India and Abroad in the project-
‘Application of CRISPER/Cas Technology in Rice’

ICAR

The Indian Council of Agricultural Research (ICAR) is an autonomous organisation under the Department of Agricultural Research and Education (DARE), Ministry of Agriculture and Farmers Welfare, Government of India. The ICAR has its headquarters at New Delhi. The Council is the apex body for co-ordinating, guiding and managing research and education in agriculture including horticulture, fisheries and animal sciences in the entire country. It has played a major role in promoting excellence in higher education in agriculture. It is engaged in cutting edge areas of science and technology development and its scientists are internationally acknowledged in their fields. The ICAR has played a pioneering role in ushering Green Revolution and subsequent developments in agriculture in India through its research and technology development that has enabled the country to increase the production of food grains by 5 times, horticultural crops by 9.5 times, fish by 12.5 times, milk 7.8 times and eggs 39 times since 1951 to 2014, thus making a visible impact on the national food and nutritional security.

Background

Recent advances in ‘Genome Engineering’ had made it possible not only to dissect complex processes and interactions but also build new pathways through synthetic biology. Past few years have seen tremendous advances in both the number and feasibility of genome engineering techniques. CRISPR (Clustered Regularly Interspersed Short Palindromic Repeats)/ Cas9 is an important component of bacterial immune system that allow bacteria to remember and destroy phages. This system has proved to be incredibly valuable for high-throughput genome engineering. CRISPR/Cas offers flexibility, as well as easy multiplexing and scaling, far beyond the capability of previous system.

Plant transformation is most commonly achieved by *Agrobacterium tumefaciens* infection or particle bombardment, both of which have inherent challenges, such as random gene integration, endogenous gene interruption, multiple gene copies and often unpredictable gene expression. CRISPR/Cas9 system has been harnessed for genome engineering in diverse eukaryotes, including plants. CRISPR/Cas9 is emerging as a plant genomics and biotechnology research juggernaut. However, key advances are still required to maximize the

potential of CRISPR/ Cas9 for functional genomics and targeted crop improvement. The transformative technology of CRISPR/Cas9-based genome engineering will reshape the future of agriculture by increasing our ability to use the genetic repertoire of the targeted crop species and boost its resistance to pests, improve yields and consistency of productivity, increase tolerance to abiotic and biotic stresses, and increase nutritional value of food.

Based on the potential of the technology for application in Indian agriculture, Indian Council of Agricultural Research (including its institutes working under it) have initiated project(s) under the aegis of National Agricultural Science Fund (NASF) and looking for partnerships from government and private entities, including Indian and foreign companies, organizations, having proven expertise in this field at a threshold.

Objectives and scope of Expression of Interest

National Agricultural Science Fund (NASF), ICAR looking for partnerships from government and private entities, including Indian and foreign companies, organizations, having proven expertise in this field. The initiation of the programme will be done in rice.

Timeline and schedule

- ✚ Submission of Expression of Interest in 30 days from the date of publication of advertisement
- ✚ All submission are to be made to the Assistant Director General, NASF, ICAR
- ✚ Further details are available at www.icar.org (link NASF)

Eligibility and selection of the projects

Government and private entities, including Indian and foreign companies, organizations, having proven expertise in the field of CRISPR/Cas. Any scientist or preferably a group of scientists from institutions: public, CGIAR, private, or civil society, with demonstrated and proven capacity in terms of expertise and availability of adequate infrastructure will be eligible to submit Concept Notes. Any private or civil society institution will be eligible to be proponent if and only if it is not less than five years old and should have been recognised and registered by the competent State or Central authorities as an organisation entitled to carry out scientific research.

Selection of the projects and partnership

- ✚ The selection of the projects will be largely through a fully open competitive mode. The Concept Notes will be first screened at the Secretariat level on the basis of whether the basic requirements for submitting a CNs are fulfilled.
- ✚ The proposal will be evaluated by a Technical Committee and give its recommendations. The Technical Committee shall develop appropriate selection criteria a priori and get the same approved from the competent authority.
- ✚ A MOU shall be signed between the collaborating organisations and NASF, ICAR. The MOU shall duly incorporate the interest of DARE/ICAR and the legal provisions and other guidelines pertaining to public-private partnerships existing in ICAR/DARE and Govt. of India.

- ✚ The Empowered Committee of NASF will take a final call for the award of the project for NASF funding.

Requirements for submission

- ✚ The proposed Concept Note (CN) will be sent by email to nationalfund1011@gmail.com. The research proposal, will not exceed two-three pages and must include the background and importance, specific objectives, approach and expected output with tentative budget requirement.
- ✚ The proposal also need to include the strength of the organization, IP issues if any, commercialization of the product developed, area of interest/ collaboration and the commodity for partnership.
- ✚ The foreign organizations need to have a full-fledge research centre/ facility in India.
- ✚ The MOU/ agreement will also have clear-cut provisions of sharing IP mutually agreed by the partners on the basis of IPR Policy/ guidelines of ICAR.