



**BIOTECHNOLOGY INNOVATION
COMPETITION
SPECIFICATIONS
2024**

VERSIONS

Version	History	Description	Changes
1			Competition Calendar, Scope, Scoring and Evaluation Conditions of Participation
2			Contest Participation Conditions
3			Competition Calendar

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1. Purpose Of The Competition

TEKNOFEST Biotechnology Innovation Competition will be organized with the aim of encouraging studies in the fields of innovation and high technology, raising awareness in different fields of Biotechnology and rewarding innovative ideas to be realized in this field. To increase interest in this field and to encourage participants to gain competence in this rapidly rising field. It will bring together both scientists and students who want to work in every subject involving Biotechnology, which has become a saving science in many subjects today. In the Rare Diseases Genetic Treatment Category, which was included in the Biotechnology Innovation Competition for the first time in 2024 and will be included as a separate category, it is aimed to change the perspective on rare diseases and to create a student ecosystem that can produce and develop genetic treatment projects

2. Scope Of The Competition

Biotechnology is a multidisciplinary field that involves the integration of life sciences and engineering sciences to enable the application of organisms, cells, cell parts, molecules and molecular analogs to products and services. In its simplest definition, it is the use of biology to develop new products, methods and organisms aimed at improving people, animals, agriculture and the environment. For this reason, it is expected that the fundamental part of the original value of the data, products and processes intended to be developed within the scope of the Biotechnology Innovation Competition should be created with biological systems.

The Biotechnology Innovation Competition will be organized in four different categories. In 2024, the Rare Diseases Genetic Treatment Category was added for the first time as a new sub-category.

- High School Category (no distinction between idea and project categories)
- University and Above Idea Category
- University and Above Project Category,
- Rare Diseases-Gene Therapy Category

Teams in the University and Above Project Category are expected to conduct original studies in the field of biotechnology and present them on theory, while teams in the Project Category are expected to have completed the experimental stages of their work and transformed it into a product (physical product, model or prototype). In the Rare Diseases Genetic Treatment Category, teams are expected to develop genetic treatment projects for rare diseases caused by genetic disorders during the competition and to carry out social awareness activities to increase social awareness of rare diseases.

High School Category, University and Above Idea Category and University and Above Project Category can submit their applications within the scope of 8 main fields of study listed in Table 1. Examples of topics corresponding to the main headings are given. Provided that it falls within the scope of the definition of Biotechnology, projects that are not included in this list, but are considered to be subject to Biotechnology, will also be evaluated within the scope of the competition. However, if the proposed project is subject to a competition other than Biotechnology, it will be eliminated from the competition.

Table 1. Biotechnology Areas where the High School Category, University and Above Idea Category and University and Above Project Category can submit projects.

Biotechnology Area	Example topics
DIAGNOSIS	<ul style="list-style-type: none"> • CRISPR/Cas9 • Vector-borne diseases - vector-targeted diseases • Public health and pandemic preparedness
THERAPEUTICS	<ul style="list-style-type: none"> • RNAi/siRNA viral vectors • Biofilms • Gene therapy • Vaccines
CLIMATE CRISIS	<ul style="list-style-type: none"> • Greenhouse gas mitigation/prevention in the atmosphere • Sequestration of carbon in the ocean • Carbon fixation • Renewable energy
AGRICULTURE	<ul style="list-style-type: none"> • Biological fertilizers • Microbial nitrogen fixation • Stress tolerance • Resistance to diseases and pests • Soil health
ENVIRONMENT	<ul style="list-style-type: none"> • Local environmental pollution • Ocean pollution • Clean drinking water • Antimicrobial resistance • Algae
BIOREMEDIATION	<ul style="list-style-type: none"> • Plastics and microplastics • Heavy metals • Domestic and industrial wastes • from nuclear facilities or contaminated sites • toxic waste
FOOD AND NUTRITION	<ul style="list-style-type: none"> • Sustainable aquaculture • Probiotics and dietary supplements • Non-animal protein • Packaging and storage of food
SPACE	<ul style="list-style-type: none"> • On-site resource utilization • Production in space • Space medical • Worldization

In the Rare Diseases-Genetic Treatment Category, projects prepared for the three rare diseases listed below will be evaluated in 2024.

1. Hemophilia
2. Retinitis Pigmentosa,
3. Amyotrophic lateral sclerosis (ALS)

3. Contest Participation Conditions

3.1. Common Rules

- The contestant will be able to participate in the competition by reading and approving all explanations about the competition and the conditions of participation before applying.
- Applicants to the competition are deemed to have accepted all of the conditions in the specification.
- All high school associate, undergraduate, graduate, postgraduate and doctoral students of Turkish citizenship or foreign nationality studying in Türkiye and abroad can participate in the competition.
- During the competition process, your level of education at the time of your application will be taken into account. You should pay attention to this when choosing a category.
- The advisor should not be added as a team member. Each team can have at most one advisor. Applications of teams with more than one advisor will be invalid.
- The document stating that the person who will serve as an advisor will fulfill the advisory duties (Assignment Document) must be uploaded to the system with wet signature on the date to be announced by TEKNOFEST Competitions Committee. The advisor undertakes to support the team until the final stage and to be with the team during the final stage.
- When applying for the competition, students are required to submit approved student documents and advisors are required to submit an approved document showing that they are faculty members/assistants, research assistants or teachers.
- Teams can be formed from a single school or as a mixed team with one or more secondary/higher education students. The competition category in which the team can participate will be determined according to the highest educational level of the team members.
- Individuals can participate in the competition as well as teams.
- Within the same category, a student cannot take part in more than one team and each team can participate with only 1 project.
- More than one different team from the same university can participate in the competition.
- Competitors can apply to the same and/or different TEKNOFEST competitions with different projects.
- Only one category or one competition can be applied with the same project. The applications of teams or individuals applying to different categories or different competitions organized within the scope of TEKNOFEST with the same project will be deemed invalid.
- Individual applicants with the project must apply by creating a one-person team through the team creation module in the KYS system.
- The project topic must include at least one of the 8 main fields of study mentioned in the TEKNOFEST Biotechnology Innovation Competition for High School, University and Above Idea and Project categories. In the Rare Diseases-Genetic Treatment Category, it must be on 3 genetic diseases specified in the Scope of the Competition.
- Project ideas must be original and not copied. Similar or imitation projects will be tested with plagiarism programs and will be subjected to preliminary formal evaluation. Projects found to be similar or imitated will be disqualified from the competition. If the competitor

has previously participated in another competition with the same project, he/she must definitely inform the name, place, date, organizer, and the result of the competition in the project file. Otherwise he/she will be disqualified.

- Contest application texts must have language singularity. The text should be created using the appropriate present tense and/or past tense. Future tense can be used for future plans or risk management. Report texts should not include statements that are not relevant to the study, manipulative and/or political discourses.
- Ethics committee approval document must be submitted for experimental studies etc. planned to be conducted on animals. In studies with human material, individual consent form, KVKK(personel data protection law) form and human ethics committee approval are required.
- If the competitor has participated in TEKNOFEST technology competitions organized in previous years with the same project, they can apply again with the condition of developing and/or transforming their project.
- The competitor cannot participate in the competition again with an identical and/or duplicate report of the previously participated project report. In case of quoting from the reports published on www.teknofest.org within the scope of the previous year's report, the source must be specified. You can find the format of citing the source under the general rules heading in the specification.
- There must be a team captain in the team. Our contestants who apply individually should choose the team role as team captain.
- All notifications to be made by the TEKNOFEST Competitions Committee during the competition process will be made to the person designated by the team as the communication officer. For this reason, each team must designate a communication officer.
- The follow-up of the processes (Application, Report Upload Deadline, Appeal Process, Form to be filled in, etc.) is the duty of the communication officer and TEKNOFEST Competitions Committee is not responsible for delays and/or disruptions caused by the communication officer.
- Applications are made online through the application system www.t3kys.com until February 29, 2024
- Between the application dates, the team captain/advisor registers through the system, registers the advisor and/or team captain/team members, if any, in the system correctly and completely, and sends an invitation to the e-mails of the advisor and members, if any. The member to whom the invitation is sent logs into the application system and accepts the invitation from the "My team information" section and the registration is completed. Otherwise, the registration is not completed.
- Competitors who have completed the team formation process must apply to the competition suitable for their project.
- All processes required within the scope of the competition (Application, Report Receipt, Report Results, Financial Support Application, Appeal Processes, Member addition/removal processes, etc.) are carried out through the KYS system. Teams are required to follow their processes through the KYS system.

- Member additions/removals are made until a date determined by the TEKNOFEST Competitions Committee during the competition process. No changes will be made within the teams after the announced date.
- During the competition process, making applications, uploading reports, objection process, filling out forms through the KYS are within the authority of the team captain and/or advisor and the competition processes are managed through these people.
- The transportation and accommodation support to be provided to the finalist teams is limited. The number of people to be supported is maximum 3 people per team (including the advisor) and TEKNOFEST Competitions Committee has the right to make changes.
- Applicants are assumed to have accepted all of the above conditions. If any irregularity is detected, the contestant will be directly disqualified. There is no right of appeal in case of disqualification.

3.2. Special Rules For High School Category

- There is no distinction between idea and project categories in the High School Category.
- Teams at high school level must have an advisor.
- For high school graduates, a maximum of 3 (three) years from the date of graduation is required to apply for the high school category.
- Teams should be formed with a maximum of 10 team members for all categories and education levels. (This number does not include the advisor.)
- In the High School Category, since there will be no distinction between idea and project categories, the THS level will not be considered as a qualifying criterion.

3.3. Special Rules For The University And Above Idea Category

- Doctoral graduates cannot take part in teams as competitors. This condition is not required for those who are still doctoral students at the application stage, but who graduate during the competition.
- Teams competing at university level and above are not obliged to have an advisor, it is optional and competitors do not have to come to the final stage with their advisor.
- Teams should be formed with a maximum of 10 team members for all categories and education levels. (This number does not include the advisor.)
- Technological Readiness Level (THS) is the most important distinguishing criterion for the Idea and Project Categories. Works with THS1-2 will be accepted in the Idea Category. Works with THS 4 and above will be accepted in the Project Category. Applications above THS2 in the Idea Category will be eliminated in technical control.

3.4. Special Rules For The University And Above Project Category

- Doctoral graduates cannot take part in teams as competitors. This condition is not required for those who are still doctoral students at the application stage, but who graduate during the competition.
- Teams competing at university level and above are not obliged to have an advisor, it is optional and competitors do not have to come to the final stage with their advisor.
- Teams should be formed with a maximum of 10 team members for all categories and education levels. (This number does not include the advisor.)
- Technological Readiness Level (THS) is the most important distinguishing criterion for the Idea and Project Categories. Works with THS 4 and above will be accepted in the Project Category. Applications below THS4 in the Project Category will be eliminated in technical control. Projects that do not declare the THS level in the application form will not be evaluated.
- Teams are expected to have completed the experimental stages of their work and transformed it into a product (physical product, model or prototype). They must come to the final stage with these products.

3.5. Special Rules For The Rare Diseases Genetic Therapy Category

- Specific to the Rare Diseases Category, below is the Rare Diseases-Genetic Therapy Project Competition Agreement. This agreement will be deemed accepted by the team when applying for this category.
- [Click here](#) for the Rare Diseases Genetic Therapy category contract.
- All associate, undergraduate, graduate, postgraduate and doctoral students of Turkish citizenship or foreign nationality studying in Türkiye and abroad can participate in the competition.
- Doctoral graduates cannot take part in teams as competitors. This condition is not required for those who are still doctoral students at the application stage, but who graduate during the competition.
- Teams are not obliged to have an advisor, it is optional and competitors do not have to come to the final stage with an advisor. Former teams or team members who previously participated in the RaDiChal Competition can participate in this Category again with new projects.
- Teams can consist of a minimum of 3 and a maximum of 5 members (this number does not include the advisor).
- Team name and team logo (During the application, the logos of the teams must be added in the dimensions determined by RaDiChal (591x591 and max 2 MB)). Team logos must be uploaded to the KYS during the team application.
- For TEKNOFEST 2024 application, one of the target diseases for which a project will be developed (Hemophilia, Retinitis Pigmentosa and Amyotrophic lateral sclerosis (ALS)) must be determined during the team application.

- Within the scope of the Rare Diseases Genetic Treatment category, [click here](#) about the scoring process before and after the Semi-Final, theoretical and practical training to be received, Rare Diseases Awareness studies and the Genetic Treatment training program.
- Once the application process is complete, the selected target disease cannot be changed.
- THS level will not be considered as a qualifying criterion.

4. Competition Schedule, Scoring And Evaluation

4.1. Competition Calendar

Table 2. Competition Calendar

History	Description
29.02.2023	Contest Application Deadline
20.03.2024-22:00	Project Preliminary Evaluation Report Deadline
24.04.2024	Announcement of the Qualifying Teams according to the Results of the Project Preliminary Evaluation Report
29.05.2024	Project Detail Report Deadline
29.05.2024	Rare Diseases Genetic Therapy Category Semi-Final Project Detail Report Deadline
30-31.05.2024	Rare Diseases Genetic Therapy Category Semi-Final
June-August 2024	Rare Diseases Genetic Treatment Laboratory Trainings
01.07.2024	Rare Diseases Genetic Therapy Category Final Project Detail Report Deadline
04.07.2024	Announcement of Project Detail Report Results, Financial Support and Finalist Teams
August-September 2024	Competition Finals
August-September 2024	TEKNOFEST

The evaluation will be made in three stages; Project Preliminary Evaluation (PPE) Form, Project Detail Report (PDR) and Final competition scoring. Teams that do not submit the PDR Form and PDR files will not be eligible to participate in the competition.

Report submission must be uploaded via the CMS system within the day and time specified in the calendar. The appeal process is notified to the teams by the TEKNOFEST competitions committee via e-mail sent after the results are announced. The TEKNOFEST Competitions Committee has the right to make changes to the calendar and times.

4.2. Competition Scoring

Table 2 shows the report scoring types and percentages. Report scores will account for 20% of the Total Score. Rare Diseases Genetic Treatment Category Score Distribution is also stated in Table 4.

Table 3: Report Score Distribution

Scoring Type	Scoring Percentage
Project Preliminary Evaluation Report	Pre-qualification
Project Detail Report	%20
Final Presentation and Prototyping	%80

Table 4: Rare Diseases Genetic Therapy Category Final Score Distribution

Scoring Type	Scoring Percentage
Project Preliminary Assessment Report	Preselection
Genetic Treatment Approaches and CRISPR Gene Regulation Theoretical Training Exam	%10
Gene Transfer Technologies Training and Genetic Therapy Proof-Concept Theoretical Training Exam	%10
Rare Diseases Social Awareness Activities	%15
Final Project Detail Report	%40
Final Oral Presentation and Poster	%25

4.3. Evaluation

4.3.1. Project Preliminary Evaluation Report

Teams are obliged to submit their PPE's (ÖDR) by uploading them to the system on the date specified in the Competition Calendar. Detailed information about the submission of the project PPE's (ÖDR) will be shared with the teams that have completed their applications after the end of the Competition Application Deadline. A pre-selection will be carried out according to the results of the project PPE's (ÖDR). As a result of the preliminary evaluations, the teams that advance to the second stage will be announced on the date specified in the Competition Calendar.

After the application, a pre-selection process will be carried out with the PPE's (ÖDR) sent by the teams. In this pre-selection process, the reports submitted will be examined in terms of the criteria listed below and invalid or incorrect applications will be eliminated. The THS

determination set will be sent along with the pre-evaluation report template and the teams will be expected to upload this set along with your report.

- Innovative- Originality Level
- The official documents of the team members showing that they meet the conditions of participation must be uploaded to the system.
- The suitability of the project subject to the scope of TEKNOFEST Biotechnology Innovation Competition
- Technology Readiness Level (THS) eligibility for University and Above Idea and Project categories
- Ethical and Formal Justifications
- Compliance with the rules of the PPS (ÖDR) format

4.3.2. PROJECT DETAIL REPORT

Teams that pass to the PDR stage are obliged to submit their PDRs by uploading them to the system on the date specified in the Competition Calendar. The PDR should be a report detailing the Purpose, Scope, Method, Risk Plan, Project Budget, Project Plan (project schedule) and Resources sections of the project. The login information of the Project Detail Report will be opened on the TEKNOFEST website, KYS system after the deadline of the competition. Teams that are successful according to the PDR results will be entitled to receive financial support if they have applied for financial support. At this stage, the financial support form to be sent via the KYS system must be filled in. The date for the financial support form will be determined by the TEKNOFEST Competitions Committee and the notification will be made to the communication officer. It is not mandatory to apply for financial support. According to the results of the PDR, the competitors who are entitled to receive financial support and the teams that are entitled to participate in the finals will be announced on the date specified in the Competition Calendar.

4.3.3. PROJECT DETAIL REPORT CRITERIA

According to the results of the Project PDR Form, the projects that pass the first selection and are eligible to continue will be evaluated according to the following criteria. Project Summary (Project Description)

- Providing a Solution to a Problem/Need
- Solution
- Method
- Innovative- Originality Level
- Implementability/Implementability

- Estimated Cost and Project Time Planning
- Target Audience of the Project Idea (Users)
- Risks
- Sources and Report Layout

4.3.4. PRESENTATION SCORING

All 4 categories will make presentations to the jury and TEKNOFEST Participants. The projects of the finalist teams will be evaluated by the jury teams specialized in the relevant category fields. A powerpoint presentation must be prepared for the jury evaluation. Detailed information about the competition environment requirements, display of products and visual presentations will be shared with the finalist teams after the finalists are determined. Final presentations must be made by the team members, consultants are not allowed to make presentations.

In the final stage, the teams will present their projects to the jury and visitors by projecting a poster summarizing their projects on the LCD screens located on the tables allocated to them in the competition area.

Information about poster size and content will be provided by the TEKNOFEST Competitions Committee in the future. According to the final evaluations, the final ranking of the finalist teams will be announced on www.teknofest.org following the TEKNOFEST Competition Calendar.

5. Awards

In order to qualify for the prize ranking in the competition, teams must successfully pass the preliminary elimination. Only the teams that qualify for the prize ranking will be eligible to receive the prizes listed in Table 4. The prizes in the table below indicate the total amount to be given to the teams that are entitled to receive awards, no individual awards will be made. First, second and third place prizes will be divided equally according to the total number of team members (excluding the advisor) and will be deposited into the bank account specified by each individual. Team advisors who are entitled to receive an award cannot benefit from the first, second and third prize amounts below, and the awards to be given to the advisors are also specified in the table below.

Table 4. Award Amounts

Category.	First place	Second place	Third place
High School Category	50.000,00 ₺	40.000,00 ₺	30.000,00 ₺
University and Above Idea Category	100.000,00 ₺	80.000,00 ₺	60.000,00 ₺
University and Above Project Category	150.000,00 ₺	120.000,00 ₺	100.000,00 ₺
Rare Diseases-Genetic Therapy	150.000,00 ₺	120.000,00 ₺	100.000,00 ₺
Consultant Award	9.000,00 ₺	7.500,00 ₺	6.000,00 ₺

Best Presentation and Commercialization Potential Award Awards

The presentations, posters, prototypes made by the finalist Teams in each category will be evaluated by the Advisory and Evaluation Board by comparing the presentation techniques, the presentation made and the results obtained, regardless of whether they are ranked or not, and a plaque will be presented on behalf of the Team under the name of the Best Presentation Award and Commercialization Potential Award for each category. The mentioned award is for prestige purposes and has no financial equivalent.

6. General Rules

[Click](#) here to access the general rules document within the scope of the competition

7. Ethics

[Click](#) here to access the ethic rules document within the scope of the competition.

Statement of Liability

T3 Foundation and TEKNOFEST are not responsible in any way for any injury or damage caused by the contestant or any product delivered by the contestants. T3 Foundation and organization officials are not responsible for any damages caused by the contestants to third parties. T3 Foundation and TEKNOFEST are not responsible for ensuring that the teams prepare and implement their own systems within the framework of the laws of the Republic of Turkey.

Turkish Technology Team Foundation reserves the right to make any changes to this specification.



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