

The analysis of the project' s applifund-duality

Our project, "VerProS: A versatile Promoter-Toehold Switches pool for optimizing adaptability of multi-gene system in *E. coli* " is a transcriptional regulation pool which is an irrational design achievement, applied in industrial. The transcriptional regulation pool can improve the production and avoid the problem of repeated building. Its applicability is wide and it can greatly reduce the manpower cost. It is a project with a high application bias -- it has a high application value, but it needs a series of preliminary auxiliary research before it can be applied to other projects. As a regulatory tool, it is necessary to prove its effectiveness. Therefore, we selected the acid tolerance problem in the amino acid fermentation industry as the regulatory object to verify the tool based on the actual situation in the laboratory.

Problem	Score
Whether the purpose of the study is to address specific production and living problems	0
Whether the research results can be directly converted into products	0

Whether the research results into products need other research assistance	0
Is there a clear application scenario for the research results	1
Research results into production whether there is a mature supporting facilities	1
Whether the production of research results requires a large amount of manpower and material resources	-1

According to the rating table, the project has obtained three 0 points and two 1 points, which indicates that the project has a high application bias, but it relies on other projects to explore the application direction and application scenarios, so as to turn it into a useful product. The project research and development process does not need large-scale concentrated research, the investment of manpower and material resources is relatively limited. In order for the project to be applied in actual production, the project team should select a specific application scenario to test the results of this study.

Combined with the actual research situation and direction in the laboratory, we chose the acid tolerance problem in the process of amino acid fermentation as the scene to test the system. In the following social practice, we not only pay attention to investigate the status quo of amino acid fermentation industry itself, but also actively explore the possible application of the system in other fields.