

## WHAT A MICROBE WOULD SAY ON GLASSDOOR

Mark Warner, PE  
Founder, Warner Advisors LLC

In my previous article on [\*Scale-up from the Microbes Perspective\*](#), I discussed how the biotechnology commercialization process would be viewed by a microbe. This is a little lighter topic than the engineering subjects I usually write about, but the robust response to the article made me decide to double-down and ponder further. This has me considering what comments would a microbe post on Glassdoor about their start-up company.

***The food here used to be great, but now it sucks*** – Life for a promising microbe starts out good, every need attended to by highly trained technical staff. The food is top quality sugar, often reagent grade. Then as the company moves down commercialization path, the cost-cutting starts. Buzz words like “cash flow” and “operational efficiency” start flying around and the company quietly transitions to industrial dextrose. That may not be too bad, but before you know it, the microbe is being fed raw cane juice or crude glycerin. Did the microbe really expect to consume thick brown liquid when it joined this company? Something the microbe should have considered and a warning that the awesome coffee service may not be around forever.

***The downstream processing group is mean to me*** – Unfortunately, the cold hard reality within advanced biotech. Once the organism is grown lovingly by the fermentation staff, there are not a lot of good things that happen to it. Best case, it is separated from the fermentation broth and somehow disposed. This can be as benign as being sent to landfill or slow conversion by anaerobic digestion (equivalent of aging gracefully). The problem comes when the company wants what is inside the cell walls. This usually involves a process called disruption, which is just a polite term for blowing the microbe to pieces. The worst part is that the microbe will not likely have enough time at the company for their stock options to fully vest.

***Management does not listen to my input*** – as microbes cannot communicate to management through the normal channels (Power Point presentation with complex drop-ins), they do it by less formal, but highly effective means. To show their value to the organization, they often hold any major advancement until days before a board meeting or investor call to make management sweat about how they are going to explain the shortfall, causing a traditional rush to get last minute results ready for prime time.

***The stress is unbearable*** – While not intended to harm the organism, stress is a key part of getting desired outcomes. The microbe flourishes through the growth stage and before you know it, the company starts messing with it by taking away key nutrients or somehow shocking it. This is not done out of spite, but because these triggers cause a change in behavior to a more favorable state for the company. Sounds reasonable, unless you are the one they are shocking.

***My goals are always changing*** – How is a microbe expected to know what is needed from them when the goalposts keep changing. One week, the priority is yield on sugar, the next week ultimate fermentation titer and then the invasive questions on whether it meets the definition of “organic” or “natural” begin. If a microbe is trying to do its part to support company goals, it is important to have them clearly outlined. Good thing microbes don’t get an incentive bonus, as the evaluation criteria change daily.

***Does someone really need to count beans*** – It is hard for a microbe to hear the technical staff through the sound of bubbling gases in the fermenter, but the one common theme they hear is that a primary source of concern at the company starts with the “bean counters”. What confuses the microbe (as a simple undeveloped organism, incapable of higher-level thinking) is why the company needs someone counting beans. Worth pondering.

As with all key employees, it is critical to understand how the selected microbe views your organization to make sure you do not find them working for your competitor.

*Mark Warner is a registered professional engineer with 30 years of experience in process commercialization, focusing for the last 10 years on taking first-of-a-kind-technologies from bench-top to commercial operation. He is the founder of Warner Advisors, providing consulting services and acting in interim engineering leadership roles for advanced bioeconomy clients. He can be reached at [mark@warneradvisorsllc.com](mailto:mark@warneradvisorsllc.com) or visit [www.warneradvisorsllc.com](http://www.warneradvisorsllc.com).*