

Rapid Micro Biosystems (RPID) - Net/Net Netting Bugs out of our Medicines

Quick Description: Rapid Micro Biosystems sells systems to automate the quality control procedures of manufactured pharmaceuticals. They are cash rich, first to market, have established relationships with large customers, and their margins are inflecting.

Why Cheap?

Rapid Micro Biosystems (RPID) took advantage of a frothy initial public offering market to come public in 2021. Initial expectations, in part encouraged by the company and its private equity backers were too high and the Company fell from almost \$1 billion in market capitalization at issue, to ~\$40mm today.

The Company was severely impacted by the secondary Covid waves which prevented them from selling and installing their product at customer sites. Relatedly, but also separately, they missed sales' forecast for the first 3 quarters as a public company. As the stock traded from 20 to the low single digits, many of the \$350mm of early underwater private investors and initial public shareholders in the \$158mm in initial public offering have sold.

In the meantime the sales function was rebuilt and they learned to give guidance they could meet, and management has delivered on their top line growth forecasts since Q1' 2023. The Company is on the verge of multiple inflection points, with gross margin inflection imminent.

Early private and early public investors have uniformly lost money and have cut exposure. With markets up, generally, stocks that have struggled, have been sold for tax purposes creating many opportunities, including in Rapid Micro Biosystems.

Valuation

The Company currently has an enterprise value of -\$12mm, an adjusted enterprise value,(if giving full credit for the net operating tax losses they hold of -52mm)), and a market cap of ~\$42mm.

The Company has been gross margin negative since inception.

Parts of their business have become gross margin positive. They believe they have thousands of basis points of further margin opportunity. They believe 2024 was peak cash flow burn, and the burn will reduce by \$10mm a year until they reach breakeven in 3 years. They also believe that they have levers to pull if sales do not come through on the timeline expected to still be able to achieve cash flow breakeven before 2028.

The Company currently trades for 1.9x market cap to LTM revenue, while growing revenue over 20% y/y. If the company were cash flow generative, and its gross margin forecasts hold, we'd expect it to trade at more than 4-5x enterprise value to revenue. At \$50mm+ in revenue in a couple years, we believe a value of \$200mm in market cap (same as EV, not accounting for NOLs at that point) is warranted. We believe a discount should be applied to own it this far before cash flow breakeven, but the stock is far too cheap and an attractive acquisition target, today,

Importantly, a strategic acquirer would do very well acquiring the Company at a multiple of the current market price. Today. A strategic acquirer could use RPID's net operating loss carryforwards, worth more than its market cap; and it's cash, also worth more than its market cap, while immediately removing many of the operating costs after closing. The then \$3-4mm in cash expense hurdle could be covered by rightsizing the working capital, while the segment turned FCF positive in late 2025 to early 2026 in that operating structure.

White Brook believes this is potentially a grand slam, but given the company still has not scaled, yet, suggests a healthy, but not super sized position.

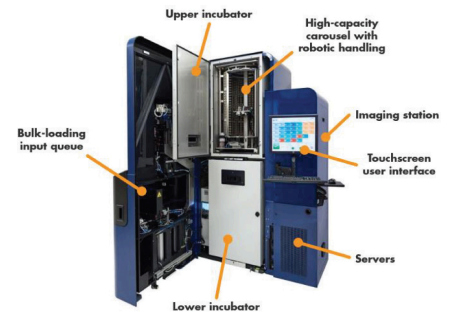
Overview

Rapid Micro Biosystems is a life sciences technology company that automates microbial quality control processes associated with the safe and efficient manufacture of pharmaceutical products.

The Company produces the *Growth Direct System*, provides validation and maintenance services, produces environmental and water/bioburden consumables, and extremely recently a sterility quality control product.

The technology enables their customers to perform mandated and elective quality control testing by accelerating time to results by 50% and eliminating up to 85% of the manual steps of traditional microbial quality control (MQC). The Company believes the total addressable market is 10,000 machines or approximately \$5bn with a similar annual spend for consumables.

The Company currently generates 45% of revenue in the US, 45% in Europe, and 10% in Asia. It has 40 individual customers including 70% of the top twenty pharmaceutical companies. 100% of approved gene-modified autologous CAR-T cell therapies. 19% of the globally approved cell and gene therapy manufacturers use their systems. 42% of Rapid's customers have purchased Growth Direct systems for multiple sites, and approximately 58% have purchased multiple Growth Direct systems. Importantly, often their customers' initial orders are used to verify the efficacy of the system and explore new operating procedures in "Centers of Excellence" with follow-on discussions consisting of much larger orders.




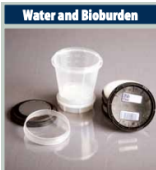
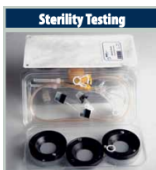
The Company has a very significant pipeline, and rarely seen confidence in its ability to deliver, but does not quantify the size given its ability to change at the whims of its customers. We have asked for additional disclosure. The Company's products' competence is extremely high and it is known as a reliable product that solves problems that has at least a 3 year payback for its customer.

On the regulatory front, it's important to note that the first Trump administration came to an agreement with their European counterparts and began implementing in November 2017 a scheme where each regulator's compliance and certification applies in both jurisdictions. It allows for pharmaceutical manufacturers to only have to worry about a single regulator. We believe it is unlikely that quality control requirements change due to an anti-regulatory wave because

- 1) Having a mold spore, virus, or bacteria kill a patient is bad for the Company providing the medicine in an environment with heightened scrutiny.
- 2) It would be anti American Business to give European nations a reason to disqualify American medicines from the European market due to a change in requirement.
3. Medicines are a national security issue, not being able to rely on them is not in the national interest.

Revenue Generation

The Company operates a razor - razor blade model, but importantly, is working towards very healthy gross margins on both.

- Growth Direct System** - Each Growth Direct System costs between \$500,000 - \$600,000 with volume discounts driving an individual machine towards the bottom of the range. Historically the gross margin has been negative, but was near 0 during the 3Q'24 and the Company believes it has line of sight to 40-50% gross margins through production cost reductions and scale over the next two years. It works by analyzing the natural autofluorescence of growing organic matter and tracks growth over time - the same method done manually by humans today, but by shining a special light on the tray and using optical detection technology. The Rapid Sterility System which was introduced midyear 2024, is substantially similar to the Growth Direct System mechanism.
- Validation services** - Each Growth Direct System is engineered into a production line's workflow and requires validation in order to ensure that the customer's results are at least as good as the manual process and fully compliant with the regulators' (FDA/European equivalent) expectations. This validation process has shortened from 18 months to 9-12 months. The Company earns low margin revenue for the initial installation process, but any time a production line is materially adjusted, revalidation must occur. The Company earns high margin revenue when it helps customers revalidate.
- One time software** - The advantage of the GDS system is that it automates and tamper proofs reporting. The machine's software ties into the manufacturing system in a way that is easily reportable to the Company's manufacturing analytics and the regulator. The Company earns one time revenue for the installation of the software.
- Service contracts** - Purchased after the expiration of the one-year assurance warranty and recognized ratably, entitles customers to receive phone support, emergency on-site maintenance support and preventative maintenance visits. This is considered a recurring revenue stream. White Brook assumes each year costs ~\$30,000 at an approximately 80% margin. For reporting, the Company combines service contracts with validation services. The company had gross margins in services as a whole of 29% in 3Q'24, up from -7% in 3Q'23.
- Consumables** - Consists of media trays that grow potential pathogens and allow for automated bar coding for tracking. The trays are made of ultraclear plastic that allows for automated optical sensors to read them. Trays are proprietary and cost \$4-5 or approximately 2x commodity trays. The Company believes its trays are overengineered and gross margins should go from slightly negative today, to 60-70% over the next two-three years. There are three types of consumables:
 - Water/Bioburden Consumable - mid single digit gross margin positive
 - Environmental monitoring - gross margin negative
 - Rapid Sterility - Much higher consumable cost of \$200. Non-material volumes for the next 18-24 months.

At full utilization, a customer can consume \$200,000 worth of trays a year, the average is ~\$80,000 as high utilization installations are offset by testing and research devices. Additionally, many customers use batch manufacturing techniques which require less use of quality control during the periods where manufacturing is not occurring.

Competitive Differentiation (BENCH)

White Brook Capital determines whether a company has a competitive advantage by determining whether the Company is the Best, Easiest, Necessary, Cheapest, and separately whether the

management team is properly incentivized to focus on the fortunes of the stockholders.

Best & Easiest: The Company's system exemplifies what we want our machines to do. It thoroughly and uniformly reviews samples, flags suspicious samples for further review, and records the data in a way that is not subject to tampering. It is automated and at least as good at detection (on average better) than highly qualified scientists, and it's automated, and therefore easier to operate than the manual process with which it competes while using substantially similar preparation and methodology to the manual process.

Necessary: The government and consumers require contamination testing.

Necessary +: Additionally, the company is "over-asseted", with backup production facilities and significant excess manufacturing capacity. It has the capacity and capability to be a tier 1 quality service provider to major pharmaceutical and contract manufacturers.

It also is a familiar system to regulators with a track record of success.

Cheapest: If the Growth Direct system senses a contaminate early that would otherwise be picked up later (GDS achieves a result in 50% of the time) or missed (tired humans, boring work) until much later, then the system earns a cash on cash return immediately. If it smoothes bookkeeping and makes the manufacturer less subject to a compliance fine, it saves the customer money as well. In many cases it allows a compliance department to have fewer employees at a fully baked \$170k a year per FTE at that level. The Company estimates payback on the machine in at least 3 years and often much more quickly.

Rapid Micro's sales hurdle is that it is a testing service for contaminants and quality control so 1) they sit in manufacturing's cost center. 2) Quality control is mission critical and therefore there is both a reluctance to tamper with the process and; 3) Their customers have the ability to postpone investments to modernize if other budget needs are deemed more immediate.

The paradox is that one of the Growth Direct System's benefits is that it increases inventory turns by decreasing the amount of time that product needs to be in storage on a hold awaiting completion of quality control contamination testing thereby increasing manufacturing efficiency.

Growth

1. **More systems:** The Company has placed ~150 out of its estimate of 10,000 systems. The Company's sales for machines are accelerating and management believes its pipeline is building as the device has more time in market and is used by customers.

The Rapid Sterility testing machine is substantially similar to the Growth Direct System in mechanism, but is an end of the line check and requires a separate machine and substantively different test. Unlike Growth Direct which has little competition, the Rapid Sterility does compete against others. The difficulty in adoption is less less customer education around the necessity and more around competition and proving the new device and methodology in the field.

The Company has the ability to both grow its machines per customer and overall customers. It is often first used as a test for a prolonged period of time before more aggressive adoption by a specific company.

White Brook has asked the Company to publicly provide more transparency in what is preventing more aggressive adoption by their customers to date and how it sees adoption pacing in segments of customers.

2. **More contaminants:** During 2Q24, the company placed its first rapid sterility unit (shares much of the same machinery, but can pick up the special trays associated with rapid sterility testing) with a current customer. Rapid sterility is likely a multi billion dollar market that

hasn't officially been added to the Company's TAM and it is currently building its capability to deliver at scale through the end of 2024.

In 2023, the Company added via software update, the ability to detect and identify mold spores in addition to viral and bacterial testing.

3. **More consumables:** Increased utilization amongst existing customers should also occur as customers advance through the Growth Direct platform adoption cycle, from early validation of initial applications to conversion of multiple applications on the Growth Direct platform, or as the result of new product approvals or increases in their manufacturing volumes for existing products.
4. **More Margin:** The Company improved from -25% to 0% margins in 2024, with a mix of positive machine and still negative but improving consumable margin. Improved automation in manufacturing has helped improve margins so far and the company is very confident it can remove more costs by simplifying the manufacturing and improving the cost to procure due to their increased scale and the ability to dual source or internationalize the manufacturing base. Scale will help the Company considerably, as for instance the Company currently air freights its consumables to Europe, but can use ocean freight or stand up a manufacturing facility locally as the law of averages of large numbers normalizes demand cadence.

White Brook has asked the Company to publicly provide more transparency in the self help steps, how much margin it believes are in each bucket, and the timeline to achieve.

Management

Management is well credentialed and they are incentivized for the stock price to work. They do make more money than their company size would suggest.

Year	Title	Name	Work Experience	Other
2014	CEO, Pres	Rob Spignesi	VP Americas Microbiology Division Thermo Fisher Scientific	West Point, Columbia MBA
2018	CFO	Sean Wirtjes	VP, Finance AMEA Boston Scientific	IR at Boston Scientific
2021	COO	John Wilson	VP - Global Ops Becton Dickinson	Army

Model

Without stressing reality, we believe the company can exceed cash burn by year end 2027, as well.

White Brook has made some assumptions, but the Company discloses recurring revenue which comprises the consumables revenue stream and the maintenance contracts revenue stream, as well as products which comprises the consumable revenue stream and the machines revenue stream. Services comprise the validation services revenue stream and the maintenance revenue stream. Most major revenue sources can therefore be approximately calculated. We've encouraged the Company to make it easier for new investors.

Cash Needs	Q4'24	Q4'25	Q4'26	Q4'27
Total Opex	12,661	9,000	9,270	9,548
% growth			3%	3%
SBC		(1,000)	(1,000)	(1,000)
D&A		(750)	(750)	(750)
Cash opex		7,250	7,520	7,798
Capex		750	750	750
Total Cash Needs		8,000	8,270	8,548

The model I believe to be directionally accurate. These are point in time quarterly estimates based on the need to be directionally and approximately right rather than specifically wrong. Fundamentally a basket of customers determine their ability to earn revenue, and only a few handfuls are necessary to get to cash flow breakeven, but nothing can be guaranteed.

Gross Profit Build	Q4'24	Q4'25	Q4'26	Q4'27
Product - Non Recurring (Machine sales)				
Growth Direct Machines sold in quarter	6	8	11	12
Average price of machine	500,000	500,000	500,000	500,000
Revenues	2,820,000	4,041,000	5,315,160	6,000,000
Gross margin	15%	25%	35%	40%
Gross profit dollars	423,000	1,010,250	1,860,306	2,400,000
Rapid Sterility Machines sold in quarter				
Average price of machine	0	2	2	4
Revenues	0	1,000,000	1,000,000	2,000,000
Gross margin	15%	25%	35%	40%
Gross profit dollars	0	250,000	350,000	800,000
Service - Non Recurring (Validation revenue)				
Normalized validating systems sold in quarter	21	31	41	52
Revenue	1,354,500	2,040,413	2,709,841	3,412,500
Rev/validating system/qtr	16,406	16,406	16,406	16,406
Gross margin	15%	25%	25%	25%
Gross profit dollars	203,175	510,103	677,460	853,125
Product - Recurring (Consumables)				
Validated systems added during year		21	29	36
Total validated machines	139	160	189	225
Quarterly revenue consumable/machine	20,132	20,132	20,132	20,132
% growth		0%	0%	0%
Total consumable revenue	2,798,289	3,213,805	3,799,473	4,530,105

Gross margin	0%	25%	45%	65%
Gross profit dollars	0	803,451	1,709,763	2,944,568

Rapid Sterility Validated machines	0	2	5	12
Rapid sterility consumables price		250	250	250
Tests per system/quarter		90	90	90
Total Revenue		45,000	112,500	270,000
Gross margin	0%	25%	50%	50%
Gross profit dollars	0	11,250	56,250	135,000

Service - Recurring

Total validated machines - Growth Direct	139	160	189	225
Maintenance contracts	100%	139	160	189
Quarterly revenue/contract	7,500	7,500	7,500	7,500
Total revenue	1,042,500	1,197,300	1,415,490	1,687,686
Gross margin	80%	80%	80%	80%
Gross profit dollars	834,000	957,840	1,132,392	1,350,149

Total validated machines - Rapid Sterility	0	2	5	12
Maintenance contracts	100%	0	2	5
Quarterly revenue/contract	7,500	7,500	7,500	7,500
Total revenue	0	15,000	37,500	90,000
Gross margin	85%	85%	85%	85%
Gross profit dollars	0	12,750	31,875	76,500

And finally the summation

Gross Profit Build	Q4'24	Q4'25	Q4'26	Q4'27
Memo: Total recurring revenue	3,840,789	4,471,105	5,364,963	6,577,791
<i>% growth</i>		16%	20%	23%
Recurring as a % of total revenue	48%	39%	37%	37%
Total product revenue	5,618,289	8,299,805	10,227,133	12,800,105
<i>% growth</i>		48%	23%	25%
Total service revenue	2,397,000	3,252,713	4,162,831	5,190,186
<i>% growth</i>		36%	28%	25%
Total revenue	8,015,289	11,552,518	14,389,964	17,990,291
<i>% growth</i>		44%	25%	25%
Memo: Recurring gross profit	834,000	1,785,291	2,930,280	4,506,217
<i>% growth</i>		114%	64%	54%
<i>% margin</i>	22%	40%	55%	69%

Product gross profit	423,000	2,074,951	3,976,319	6,279,568
% growth		391%	92%	58%
% margin	8%	25%	39%	49%
Service gross profit	1,037,175	1,480,693	1,841,727	2,279,774
% growth		43%	24%	24%
% margin	43%	46%	44%	44%
Total gross profit	1,460,175	3,555,644	5,818,046	8,559,342
Gross profit margin	18%	31%	40%	48%

Only a small account incubating this new small & microcap focus at White Brook Capital is invested in RPID currently.

If you find this idea interesting and want to chat about it as always feel free to reach out to discuss this or any of your investments at White Brook Capital.

Sincerely,



Basil F. Alsikafi

Portfolio Manager

White Brook Capital, LLC

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