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PRESENTATION

Operator

Ladies and gentlemen, thank you for standing by, and welcome to Fluidigm Third Quarter 2019 Financial Results. (Operator Instructions) As a reminder, this conference call is being recorded. I would now like to turn the conference over to your host, Ms. Agnes Lee, Vice President, Investor Relations. Please go ahead.

Agnes Lee *Fluidigm Corporation - VP of IR*

Thank you, Charlie. Good afternoon, everyone. Welcome to Fluidigm's Third Quarter 2019 Earnings Conference Call. At the close of the market today, Fluidigm released its financial results for the quarter ended September 30, 2019. During this call, we will review our results and provide commentary on recent commercial activity, market trends and our strategic business initiative. Presenting for Fluidigm today will be Chris Linthwaite, our President and Chief Executive Officer; and Vikram Jog, our Chief Financial Officer.

During the call and subsequent Q&A session, we will make forward-looking statements about events and circumstances that have not yet occurred, including plans and projections for our business, future financial results and market trends and opportunities. Examples include statements about expected revenue growth; the anticipated positive impact of various strategic and operational initiative; prospects for our products and technologies; potential customers and collaborators; projected sales for our recently introduced product; and guidance for revenue, operating expenses, cash flow and consumables pull-through for the fourth quarter of 2019. These statements are subject to substantial risks and uncertainties that may cause actual events or results to differ materially from current expectations. Information on these risks and uncertainties and other information affecting our business and operating results is contained in our annual report on Form 10-K for the year ended December 31, 2018 as well as our other filings with the SEC. The forward-looking statements in this call are based on information currently available to us, and Fluidigm disclaims any obligation to update these forward-looking statements except as may be required by law.

During the call, we will also present some financial information on a non-GAAP basis. Non-GAAP information is not prepared under a comprehensive set of accounting rules and should only be used to supplement an understanding of the company's operating results as reported under U.S. GAAP. We encourage you to carefully consider our results under GAAP as well as our supplemental non-GAAP information and the reconciliation between these presentations. Reconciliations between GAAP and non-GAAP operating results are presented in a table accompanying our earnings release, which can be found in the Investors section of our website.

I will now turn the call over to Chris, our President and CEO.

Stephen Christopher Linthwaite *Fluidigm Corporation - President, CEO & Director*

Thank you, Agnes. Good afternoon. Thank you for joining our third quarter 2019 earnings call.

As you might expect, we are deeply disappointed in the revenue results for Q3, which fell $500,000 below our guidance range of $27 million to $30 million. We made excellent progress in consumables and services growth, but suspension mass cytometry unit placements in the Americas fell short of our projections. Though we did not achieve our expectations for the period, we remain optimistic and encouraged by the broad market interest in our solutions.

As we went through our analysis of the quarter results, we observed in particular that within certain academic submarkets, some

prospects are taking significantly longer to secure funding for equipment purchasing as belt-tightening slows the release of grants, institutional money and other capital sources in our price category. In some instances, sponsoring investigators are asking for more help from us to develop return on investment models for their management. These are issues that we can address, and this extended sales cycle is primarily impacting previously unpenetrated accounts.

Building on this observation, I'm going to elaborate on our few overarching themes, starting with perspectives on our markets, followed by our customer segments and then our products. First for the mass cytometry business and then for microfluidics. As you will see, we are confident that we can make adjustments and overcome the headwinds we faced.

First, the cytometry markets. Across all regions, our underlying major markets remain generally healthy. Market demand for solutions in high-parameter protein across tissue and cells is good as evidenced by the strength in our recurring revenue streams of consumables and services. In the U.S. market, we've observed a capital spending above $500,000 is seeing more scrutiny. And as a result, sales cycles outside of the most well-funded institutions has extended as compared to a year ago. We see similar dynamics in EMEA, but we appear to be faring a bit better there, which could be related to the fact that we have been integrated into the major grant cycles at some accounts for more than a year. In APAC, particularly Japan and Greater China, demand remains strong for immuno-oncology and immune system-related tools. We anticipate providing more encouraging examples of our progress in this region shortly.

With new commercial leadership in place, both globally and in the Americas over the last few months, we initiated a critical assessment of our gaps and opportunities during Q3. We gained a number of insights and started taking action in the quarter. These efforts, which are ongoing in Q4, include tweaks in sales coverage particularly in the U.S. as well as adaptation of our selling process and marketing approach to better address new segments. The full benefit of these actions should produce results in 2020 and beyond.

On the cytometry customer segments. For some time, we've been talking about multiple customer segments for mass cytometry, and we've highlighted key wins in academic medical centers, particularly large ones like the comprehensive cancer centers. Progress in that segment was critical for us to better target mid-tier academic centers, CROs and CRLs and pharma biotech with both data and proof points.

Demand in large academic medical centers remained strong. We have penetrated more than half of the targeted U.S. and EMEA accounts in this segment. And in many situations, we have sold multiple systems with the largest accounts approaching 10 or more installed units. Consumables are trending in line with our expectations, and we materially increased our clinical trial participation. We have good sales coverage in this segment, and we are very pleased with the continued progress. We see incremental placement opportunities and new demand emerging from these institutions.

In contrast, for the mid-tier academics, sales cycles have extended primarily due to capital constraints and a reticence to commit to purchases in advance of broader demand from investigators. Our coverage is not as strong in this segment, and we believe we are not investing enough time on-site to facilitate stakeholder alignment and progress in the purchasing process. We've analyzed our tactics for this segment and are making adjustments.

Moving on, the CRO, CRL segment is very interest -- is a very interesting category. Interest is markedly higher than a year prior. Smaller specialty CROs are looking to build differentiated offerings, and they invest based on anticipated outsourced service demand from pharma and biotech. Large CROs build capabilities via acquisition or organic build-out with a bias towards seeing established clinical trial demand before making commitments. Our clinical trial traction is having a favorable impact. We have accounts in every major geography, and there is a large market opportunity if we are nimble in our tactics.

Finally, for the pharma biotech segment, unlike a few other groups, there's ample capital. The speed to market for their therapeutic pipelines is the top priority. We believe this segment is more focused on accessing our technology via academic and CRO service partners in the near term versus organic build-out of new labs. We have good penetration in discovery groups across the top 10 pharma, but more work is required to bridge into their translational groups as well as the potentially lucrative biotech subsegment of the market.

The success of our recent menu expansion and new tools is addressing critical unmet needs. We have penetrated more than 100

accounts with our immune profiling solution. Our first-in-class immune profiling panels provide simple end-to-end workflows and suspension-based cytometry. Initial sampling is leading to larger and larger reorders. These solutions are a key part of our clinical trials penetration strategy. We will continue innovation along these lines, and over time, we'll drive new unit placements.

In software, we released an enhanced version of our CyTOF product suite that addresses many customer pain points. Uptake is robust, ease of use and post-experiment data interpretation is a critical part of our broader accessibility value proposition and is especially important to the new segments we are targeting.

New metals. At the end of the quarter, we released 7 new metals, which establishes us as the first technology platform to unlock high-resolution analysis of more than 50 protein signatures simultaneously. We had excellent uptake in the first weeks of the release as new metals unlocked larger panel sizes, enhanced customer satisfaction and incremental revenue per system from our installed base. We have more metals in development and they're scheduled for release in the first half of 2020.

Turning to an analysis of our mass cytometry product performance. Our solutions provide a market-leading capability in high-parameter cytometry. Mass cytometry simplifies high-parameter panel design in comparison to other methods. In addition, no other platform enables both high plex suspension cytometry and highly multiplexed imaging. As of the end of September, we had 275 active installed mass cytometry instruments with more than 70 that are enabled for imaging.

Our worldwide year-to-date imaging mass cytometry instrument growth has been phenomenal. Customer usage of our platforms has been strong. These proof points are demonstrated through publications, clinical trials and customer adoption to study a broader range of diseases. At this point, there are more than 945 publications using our mass cytometry platforms. Year-to-date, there have been 280 new publications using Helios with concentrations in immunology, immune function, immuno-oncology and infectious disease. And since its commercial launch, there have been 43 publications using our imaging platform.

We are in over 60 clinical trials across a broad range of disease areas, including immuno-oncology. This represents an increase of 20% since Q2. At our third annual imaging user group meeting in Zurich earlier this quarter, we saw exciting new data from ongoing translational and clinical trials work enabled by our technology. We look forward to providing updates on these clinical trials as they publish their results. In the U.S., a government research hospital has selected imaging mass cytometry for the study of traumatic brain injury, so we see user expansion beyond immuno-oncology as well as opportunities to expand in the government research segment.

Turning now to microfluidics. The microfluidics business performance has lagged our expectations over the course of the year. We have discussed it in each earnings call this year. The microfluidics narrative is different from mass cytometry as we navigate near-term dependency on a relatively concentrated group of legacy customers while we market the new products we recently commercialized. The relative markets for our microfluidics products is somewhat unique as our platform offers a unique value proposition. We provide traditional genomic solutions as well as power a novel approach to collecting proteomic information using a hybrid antibody PCR approach.

The broad genomics market continues to grow in mid-single digits, but we believe we have increasing opportunities to take share from competing genomics technologies and some protein detection platforms. The market health is unchanged from our prior quarter.

In terms of customers and customer segments, we see a broad range including academic, contract research and reference labs, biopharma and ag bio. Our legacy activities concentrated in ag bio, academic, and CRLs, with CRLs representing the fastest-growing subsegment. These customers prioritize cost reduction and increased sample throughput. In addition, they're developing new service lines to attract incremental business. We can be very helpful in these areas.

Our underperformance compared to Q3 of last year reflects the loss of significant revenue at a Chinese-based CRL that shifted technology platforms for a portion of their business. We continue to see softness in ag bio. We offset some of this weakness through strong sales to a leading proteomic solutions provider. With more selling focused on the CRL segment, we can drive incremental revenue and reduce our dependency on legacy customers. We have added commercial heft in this area to generate more traction.

In terms of product updates, we are seeing green shoots from our R&D programs. We have initial sales in all geographies, and an impressive pipeline for our new RNA seq NGS library prep solution. The product was showcased with a well-attended customer events at the ASHG meeting in Houston. Our opportunity funnel for kits and new Juno systems continues to grow daily. And after just 6 weeks, we have more than $2 million in opportunities. We project Q4 sales in the range of $250,000 to $400,000 with acceleration headed into 2020. These new products and initiatives should drive increased pull-through, stimulate demand for new instruments and attract more interest for partnerships. I am confident we are moving in the right direction, and I look forward to providing updates on the execution of these market and commercial strategies.

I'll now turn the call over to Vikram, our CFO, for a complete review of our financial results.

Vikram Jog ***Fluidigm Corporation - CFO & Principal Accounting Officer***

Thanks, Chris, and good afternoon. Total revenue was $26.5 million in Q3 2019, a decrease of 8.5% year-over-year. On a year-to-date basis, revenue grew 5% to $84.8 million in 2019. Changes in foreign exchange rates had a minimal net impact on revenues for the third quarter of 2019 and negatively impacted revenues by 1% for the year-to-date period.

Mass cytometry revenue of $15.6 million in the third quarter decreased 13% year-over-year. As you may remember, mass cytometry revenue experienced a significant sequential increase between Q2 and Q3 of 2018. The year-over-year decline in mass cytometry revenue was due to lower instrument revenues primarily in the United States, offset by strong growth in consumables and service revenues. We continued to experience delays in mass cytometry instrument orders in the third quarter similar to the previous quarter primarily due to longer sales cycles. Year-to-date, mass cytometry instrument growth has been strong, in line with the year-to-date growth in total mass cytometry revenue.

And over 1/3 of our instrument placements this quarter represented incremental units to existing customers. Mass cytometry consumables and service revenue delivered strong double-digit year-over-year growth in the third quarter, including solid revenue growth from our Maxpar Direct Immune Profiling Assay that was launched at the end of March 2019.

We also saw good initial orders for labeling kits for 7 new metals that were launched in mid-September. Consumables pull-through in the third quarter was in line with Q2, but still below our 2019 guidance. Also notably, we had strong growth in service revenue in the quarter. We expect mass cytometry pull-through to be close to our guidance range in the fourth quarter of 2019 as customers ramp up usage of their instruments.

Microfluidics revenue of $10.9 million decreased 2% year-over-year driven by a decline in instrument sales. We saw very strong performance from a top key account, and we signed a new key CRO account for a different microfluidics product during the quarter. As Chris mentioned, RNA seq has had a good initial uptake, but it was a small contributor to the quarter, given its launch in mid-September 2019.

As a reminder, a significant portion of our microfluidics consumables revenue is tied to a small number of customers. Consequently, we continue to expect quarter-over-quarter variability in microfluidics revenue. We are beginning to develop a good pipeline for RNA seq as we execute on our strategy to focus on new key accounts and grow the business with new applications. Consumables pull-through for our microfluidic instrument systems was slightly higher than in Q2, but continued to be lower than our guidance ranges.

Turning now to a regional perspective. Compared to Q3 2018, EMEA revenue grew 4% to $9.1 million primarily driven by higher microfluidics, consumables and overall service revenues, partially offset by lower mass cytometry instrument sales. Foreign exchange rates had a negative 2 percentage point impact on sales. Without that negative impact, EMEA grew 6% year-over-year.

Americas revenue declined 19% to $11.1 million primarily driven by lower sales of mass cytometry instruments partially offset by higher mass cytometry consumables and service revenues. Similar to Q2 2019, third quarter mass cytometry consumables pull-through in the Americas was significantly higher than our worldwide pull-through guidance range of $73,000 to $78,000.

Asia Pacific revenue declined 4% to $6.3 million primarily driven by lower microfluidics sales partially offset by higher service and mass

cytometry instrument sales. This comparison was impacted by a very strong third quarter in Asia Pacific last year. Our Asia Pacific business continues to perform well, and year-to-date has grown 22%.

Moving on now to our operating performance. GAAP gross margin was 53% in the third quarter compared to 54.6% in the year ago period and 54.5% in the second quarter of 2019. Non-GAAP gross margin was 65.5% in the third quarter of 2019 compared to 66.4% in both the year ago period and in Q2 2019. The year-over-year decrease in non-GAAP gross margin was primarily due to lower production capacity utilization, lower service margins and a reserve for excess inventories partially offset by favorable product mix. Sequentially, the decrease in non-GAAP gross margin was primarily due to unfavorable product mix and the excess inventory reserve. In the case of GAAP gross margin, the year-over-year and sequential decreases were coupled with fixed amortization over lower revenue.

Operating expenses on a GAAP basis in the 2019 third quarter increased approximately 1% year-over-year to $27.9 million, and on a non-GAAP basis decreased 1% year-over-year to $24.2 million. The increase in GAAP operating expenses was due primarily to higher stock-based compensation partially offset by lower variable compensation accruals. The decrease in non-GAAP operating expenses was primarily driven by the absence of expense related to a retention bonus program that ended at year-end 2018.

GAAP net loss for the third quarter was $12.9 million compared to $14.8 million for the same period last year and $13.8 million in Q2 2019. The year-over-year decrease in GAAP net loss was primarily due to lower interest expense offset by lower gross profit. The decrease in net loss versus Q2 2019 was driven by lower operating expenses offset by lower gross profit. The non-GAAP net loss for the third quarter was $6.2 million compared to $5.2 million for the year ago period primarily driven by lower gross profit partially offset by lower operating expenses.

Reconciliation tables between our GAAP and non-GAAP measures are provided at the end of our earnings press release that was issued earlier today.

Now moving on to the balance sheet and cash flow. Accounts receivables were $14 million at the end of the third quarter compared to $19.3 million at the end of the second quarter of 2019. DSO was 48 days at the end of Q3 compared to 62 days at the end of the second quarter.

Cash and cash equivalents, short-term investments and restricted cash at the end of the third quarter of 2019 totaled $64.8 million, including $36.9 million of short-term investments that are readily available for sale and $2.1 million in restricted cash. This compares to $70.9 million at the end of the second quarter of 2019, a net decrease of $6.1 million, including a semiannual interest payment of approximately $700,000.

At the end of Q3, the borrowing base under our asset-based revolving credit facility was $9 million, none of which was utilized.

And finally, on to guidance for the fourth quarter of 2019. Total revenue is projected to be between $29 million and $32 million.

GAAP operating expenses are projected to be $29 million to $30 million. Non-GAAP operating expenses are projected to be $25 million to $26 million excluding stock-based compensation of approximately $3 million and depreciation and amortization expense of approximately $1 million.

Total cash outflow is projected to be between $6 million and $8 million for the fourth quarter of 2019. We expect total cash outflow in the first quarter of 2020 to be a little higher than our projected outflow for the fourth quarter primarily driven by annual bonus payments, the approximately $700,000 of semiannual interest payment on our convertible debt and increases in payroll taxes. However, cash outflow in Q1 2020 is not expected to be as high as in Q1 2019, which included higher interest and bonus payments and a retention bonus payment that is not expected to recur in Q1 of 2020.

And with that, I will turn the call back to Chris for closing remarks.

Stephen Christopher Linthwaite ***Fluidigm Corporation - President, CEO & Director***

Thank you, Vikram. We executed well on our innovation strategy in the period, and we have taken steps forward in driving market expansion. We must improve our commercial execution and agility in response to the feedback of the new market segments we are targeting. Overall, the mass cytometry business has grown. For microfluidics, we must close funnel opportunities and untether ourselves from the dynamics of our legacy business. Success on these vectors will drive enterprise-wide revenue growth.

In summary, we are increasing our installed base, and we see headroom for growth around the world for all of our platforms. Adoptions of our workflows and instruments for clinical trial work is growing. And we are seeing excellent uptake of our mass cytometry consumables as well as customers signing up for 2- and 3-year-long service contracts. Yes, we have work to do to expand America's suspension mass cytometry instrument adoption, but we are already executing on that strategy while scaling up selling efforts in our sizable microfluidics franchise.

From an investor perspective, I know we are asking for more patience, but I remain absolutely confident in the Fluidigm management team and our ability to deliver more innovation and more revenue growth while maintaining financial discipline and demonstrating operational improvements. These activities will drive sustained growth and tremendous long-term value.

As always, I thank our over 500 employees for their contributions this past quarter as we delivered on a number of significant product launches in parallel across our portfolio. We now need to convert these launches into meaningful new revenue streams.

We are healthier today than 3 years ago when I arrived. Our aspirations are growing along with your increased expectations. And shifting our gaze from quarterly updates to the longer-term vision of success, we are confident we're going to have a major impact on health care and health care research.

With that, I'd like to open the line for questions.

QUESTIONS AND ANSWERS

Operator

Our first question comes from the line of Sung Ji Nam with BTIG.

Sung Ji Nam ***BTIG, LLC, Research Division - Director and Life Science & Diagnostic Tools Analyst***

Maybe starting out with the RNA seq library prep kit that you guys launched, talked about the funnel building out nicely there. I was curious, are you seeing demand globally? Or are there certain regions where you're seeing greater demand? And then also, what's kind of the split between your existing customers versus new customers that might be interested?

Stephen Christopher Linthwaite ***Fluidigm Corporation - President, CEO & Director***

Thank you very much for the question, Sung Ji. So with regards to RNA seq, yes, overall, we're extremely pleased with the early pipeline development that now exceeds more than $2 million. The -- from a geographic perspective, we did prioritize more of our market development activities in the Americas in the first few weeks. So there's a heavy skewing of that funnel for now that sits in the U.S., although we see no reason why that market won't expand into other regions. And as we stated earlier in maybe the comments, the prepared comments, we've already had placements on sales of kits into all major geographies. So I think it's early days, but the balance of the funnel right at this moment is more biased towards the American market.

I think overall from a mix of new customers, we're actually seeing a significant number of new customers for this. So it's -- and as you may recall, we talked about, we have a relatively small market share in microfluidics and genomics as compared to the total addressable market for next-generation sequencing, plugging the next-generation sequencing. So we think this is going to represent significant new opportunities in terms of incremental Juno placements over time as well as strong consumables pull-through.

Sung Ji Nam ***BTIG, LLC, Research Division - Director and Life Science & Diagnostic Tools Analyst***

And then just on the mass cytometry side, you talked about from the suspension side of -- suspension platform, seeing delays in terms of purchasing decisions, et cetera. I was curious, are there any competitive dynamics at play, recognizing obviously there might not be direct competitors? Or are customers also taking longer to evaluate platforms, just given there are potentially other alternative options out there?

Stephen Christopher Linthwaite ***Fluidigm Corporation - President, CEO & Director***

From a -- so the question obviously relates to suspension of the dynamics related to suspension. And I think as we kind of made a comment in our prepared remarks, we have seen a shift in the last few quarters in particular and more scrutiny of expenses above or capital equipment investments above the $500,000 mark. I think as we've been reflecting on some of the other prints that are coming out, it seems to be there may be other analytical instrument providers, different categories, but kind of in similar price points maybe seeing some similar dynamics overall in their placements. So I think we can attribute it more overall to the general higher scrutiny across all categories of spend in this area versus direct competitive influences.

Sung Ji Nam ***BTIG, LLC, Research Division - Director and Life Science & Diagnostic Tools Analyst***

And then just lastly, I guess looking ahead, I was curious between the suspension cytometry versus the imaging platform. Where do you see kind of the greater demand going forward based on kind of the publications that are coming out as well as where the customer demand might be?

Stephen Christopher Linthwaite ***Fluidigm Corporation - President, CEO & Director***

So I guess -- is your question on which markets are going to be the larger markets? And so over what time, and I couldn't quite follow exactly how you're juxtaposing that against publications. Did you mean by application or questions are being asked or customer segment?

Sung Ji Nam ***BTIG, LLC, Research Division - Director and Life Science & Diagnostic Tools Analyst***

Yes, just in terms of applications and just in terms of customer interest, the types of research, I guess, projects that are getting funded, et cetera, driving potential growth in the future for suspension versus imaging.

Stephen Christopher Linthwaite ***Fluidigm Corporation - President, CEO & Director***

I think it's a contrast. So in the suspension side, it's much -- suspension cytometry is a much larger and, as you well know, a much more established market. What as you may reflect when we've been sharing our market evolution kind of growing from an early discovery-based tool that was in our early proof of principle, to enabling or unlocking the potential to do 20 or more parameters of the simultaneous analysis. We expanded that competitiveness into the 30, mid-30s. And now we've pushed those up into 50 and established ourselves as the first purveyor of highly multiplex suspension-based analysis in more than 50 parameters.

As that market's a larger market, we are also driving a shift from some of the lower measurements, the lower parameter analysis more towards shifting dollars both to higher parameter and we're probably participating overall. That market is probably a high single-digit grower for all cytometry, flow cytometry. And we believe we're the fastest-growing segment of that. So I think there's plenty of opportunity for us to take additional market share from the mid plex market and also to see the market moving in our favor towards higher plexing dynamics. And overall, it's a larger market and a more established market. And certainly, our publication momentum already reflects the larger installed base and the larger, more established demand dynamics.

Imaging is newer, and so we were the first commercial player, entered this market about 3 years ago. We're very pleased with both in terms of our clinical trials penetration as well as the number of new publications that are being shared by researchers on this as well as our installed base, which now expands or extends beyond 70 units. So I think it's very early days. I think imaging could be very, very big in the coming years. It's just more speculative for us because of what dimension it will grow on. Will it grow on parameters, will it grow on DNA versus RNA versus protein, simultaneous detection. There are many other dynamics that will influence the imaging market. And so as a first mover, we need to be prepared to adapt or as we see more market opportunities in here. The interest from a scientific perspective are incredibly hot right now, and they're very broad, but oncology and immuno oncology are the top primary focus, and the primary drivers of demand for both segments, at least from our perspective.

Operator

Your next question comes from the line of Dan Brennan with UBS.

Daniel Gregory Brennan ***UBS Investment Bank, Research Division - Senior Equity Research Analyst of Healthcare Life Sciences***

Great. I guess first one is just on, Chris, is on the mass cytometry. So I know you mentioned others have kind of cited some maybe some CapEx pressure, although we haven't heard it too broadly. So I guess what data points can you share that indicates the shortfall is basically at the market opportunity may be smaller than you expected?

Stephen Christopher Linthwaite ***Fluidigm Corporation - President, CEO & Director***

So I guess if -- I'm trying to make sure I understand the question. So I think what you're trying to say that the market -- the addressable market overall shrunk in the period?

Daniel Gregory Brennan ***UBS Investment Bank, Research Division - Senior Equity Research Analyst of Healthcare Life Sciences***

No, just based -- yes, no. Yes, no. Basically, you're basically in this commercial and funding. I'm just wondering possibly that as you look at kind of the placement opportunity, maybe the placement opportunity isn't as big as you expected. So maybe you can just speak to whatever kind of color on backlog or funnel, or anything like that, that might give us some visibility towards kind of the lack of getting something over the goal line, but that the demand is there.

Stephen Christopher Linthwaite ***Fluidigm Corporation - President, CEO & Director***

I mean I think we need to look at market size across each of the segments. And I know we don't break out market sizing, at least to date, we have not by unit placements. I think that we're still a relatively small percentage of the total number of unit placements that occur in the marketplace. In the academic medical centers and the larger centers as I commented, we've had extremely good penetration in that area, and we continue to radiate inside of those accounts. We both see strong consumables dynamics, meaning we're attracting more and more users inside those institutions and to getting more instrument placements.

We're trying to compare is the academic medical centers in the mid-tier were an area that we were shifting some focus to as we were moving further down in the funnel between -- from the top part of the richest academic medical centers. That's an area where we saw more challenges. And through either some combination of the intensity that we need to spend inside of those accounts, more proof points that are required. I don't know if that means that the market size is smaller than we think, or if we're just going to take a little bit longer to have to unlock that full market potential.

In the CRO and CRL segments, I think this is new new for us. So we have some initial toeholds in each one of the major geographies in this area. But I think there's a very significant amount of unit placements that we're only seeing a trickle of at the moment.

And then pharma and biotech over the long term are probably the largest single market segment potential. But as we've been moving into those segments beyond the discovery groups, we have seen that their speed to an answer, meaning they want to have a system already in place today in order to get a [roughly cloning] need them to try to drive towards service providers. And because we haven't fully penetrated, I think, adequately penetrated the CRO segment, that's inhibiting our ability to participate fully in the dollars that are available in the pharma and biotech market. So I think there's plenty of unit placement opportunities out there, but we've got to work through the series of gates to get ourselves to get into those larger, more addressable segments.

Daniel Gregory Brennan ***UBS Investment Bank, Research Division - Senior Equity Research Analyst of Healthcare Life Sciences***

Got it. Great. And then maybe related to it, can you share any color on backlog or funnel earning metrics that might give us a viewpoint towards the kind of the demand that's there, but yet you need to get kind of funding over the goal line as you kind of indicated in the prepared remarks?

Stephen Christopher Linthwaite ***Fluidigm Corporation - President, CEO & Director***

Maybe what we'll do is we'll try to give you some qualitative. We obviously don't share quantitative information related to backlog. From our perspective, of course, the larger the backlog, the easier it will be for us to forecast forward periods. And clearly have not had, at least in the prior period, a significant or substantive enough backlog to offset the [feat] of opportunities that are sitting in our funnel.

Overall, we haven't seen a diminishment of demand or interest in the technology. What we have seen is some -- as we've seen in our stage-gate process, deals that have not moved across the finish line. So we continue to add opportunities in there. We need to get more through the funnel or we need to dramatically expand the size of our overall funnel in order to get the yield we need in order to deliver more sustained growth period to period. So we think there's things that we can do. There's some tweaks like I talked about in terms of coverage model. Also even tweaking our value proposition in some cases to help get across some -- or get over some of those hurdles we've seen or some obstacles over the top at some of those accounts. So I think there's things that we can do. We've got a significant enough or a large enough opportunity funnel. We need to get more yield out of it. And of course, we'd love to see -- if we can't get more yield, then we need to make sure we get a larger funnel overall, which mean that we could generate more leads, more opportunities in our marketing operations as well as, perhaps, add a few additional sales people to help in the coverage of these key segments that we're trying to unlock. So unfortunately, I'm not going to be able to share kind of substantive details on backlog of the funnel, but I hopefully that helps from a qualitative perspective.

Daniel Gregory Brennan ***UBS Investment Bank, Research Division - Senior Equity Research Analyst of Healthcare Life Sciences***

Right. And then, sorry to be kind of [ask a few]. So then related to that comment, the comments you just made. So it sounds like it's really tweaks at this point or add a few salespeople. So there isn't really a plan yet to either have x number of new salespeople or new commercial go-to-market strategy or maybe more discounting? I'm just wondering where are you in the evolution of your like plan to attack this kind of market that seems to have slowed a lot more than you expected.

Stephen Christopher Linthwaite ***Fluidigm Corporation - President, CEO & Director***

Well, what I'd say is I think it's -- we've been the rate-limiting stuff in some cases in here. And I think that we probably have ran a little too lean in terms of coverage in the Americas in particular. And so that's why I think that we're seeing more yield in the other regions than in the U.S. In particular, we're more at the leading edge of unlocking these new customer segments vis-à-vis the other regions around the world. So we've already started efforts in this area. We didn't wait. We started in Q3 in this area. It's also somewhat interrelated with our modest scale up that was occurring in microfluidics. So as we have a clear, we think, and a very clear winner in terms of a new product, that gives us confidence that we can shift, we can kind of subdivide our resources, have one group that's going to work more clearly on microfluidics, and another group that's going to work more clearly on mass cytometry. And I think that will drive effectiveness for both segments. So we actually have already been underway with those efforts into this quarter.

Daniel Gregory Brennan ***UBS Investment Bank, Research Division - Senior Equity Research Analyst of Healthcare Life Sciences***

And maybe last one would be, what's baked in for the fourth quarter? Could you give us some color on either instrument placements and pull-through? Just kind of break it down, given the shortfall this quarter. I'm just wondering kind of what you're baking into that $29 million to $32 million revenue outlook.

Stephen Christopher Linthwaite ***Fluidigm Corporation - President, CEO & Director***

Well, as we -- I think Vikram shared in his prepared comments some commentary on pull-through. So I think the -- I won't take words out of his mouth, but I think he generally guided towards that we think we'll be -- entering the range or very nearly into the range for pull-through with regards to mass cytometry. I'm not sure he made color comments on the other area, microfluidics. So I have to clear up anything that I'm saying. Do you want to go ahead and go for a second there?

Vikram Jog ***Fluidigm Corporation - CFO & Principal Accounting Officer***

Yes. Dan, we don't normally break down our guidance. But I think it would be safe to say, given the implied sequential increase in revenues from Q3 to Q4, that we do expect recovery in the mass cytometry business. We definitely expect to see growth in RNA seq. We pointed to the pipeline developing. And we've also given a number related to RNA seq. But the caution of microfluidics, which we have again repeated this time is that, that is subject to volatility until we get traction on the new applications. So I think qualitatively and in generic terms, it would be safe to say that the Q4 guidance bakes in recovery in mass cytometry. And we've also made comments that we do expect to reach the pull-through guidance that we had outlined for the year, albeit at the end in Q4. So that gives you some color on what's baked into the Q4 guidance.

Operator

(Operator Instructions) Your next question comes from the line of Bill Quirk with Piper Jaffray.

William Robert Quirk ***Piper Jaffray Companies, Research Division - MD and Senior Research Analyst***

Great. I guess the first question, I want to go back to a couple of what Dan was talking about. And I guess when we think about the order funnel, Chris, you had mentioned on the 2Q call that the funnel was really quite strong. I think at the time, you guys didn't necessarily want to commit to it for the third quarter, but it doesn't look like it's going to be coming to fruition in the fourth. And so -- and I appreciate that this ties in with some of the earlier comments, but that seems like quite a pushout for some deals that seemingly were in hand presumably, actually originally expected to close in the second quarter. So maybe you can help kind of unpack that and help us think about have any fallen by the wayside? Is everything still in the funnel? But it has everything to do with what you said in your prepared comments. Just give us some additional color there.

Stephen Christopher Linthwaite ***Fluidigm Corporation - President, CEO & Director***

Sure, Bill. Thanks for the question. So the best we can help, I think, on this is as Vikram -- just amplifying what Vikram said, we do see a sequential improvement in unit placements from Q3 into Q4, which will also represent sequential improvement in Q2 in terms of unit placements. So I understand the sentiment of your question, but I think in reality we are going to see a step-up in unit placements in Q4.

I guess the easiest way to kind of qualify as we had stated at the end of Q2 coming into the Q3, was that we had a lot of uncertainty about where the timing of the funds would come from and which sources of fundings that they would have to come through with. And we saw that uncertainty play out throughout Q3 for a couple of the deals that fell out of the quarter.

And so we did our best to handicap when we built our consensus or built our guidance model for Q3 to model a percentage of those hitting in Q3, and we were clearly incorrect on our modeling assumption. So for Q4, we've done our best to kind of revisit our lessons from Q3, and we think we've done the best we can as far as handicapping the overall funnel.

I think the size, it's really not the question of the size, it's about progression through the stage gates. And even what does 75% mean when we still don't see a check in hand, or we don't see a clear PO being released. And they're stating, the PI is maybe saying it's coming, but it doesn't come out through administration. Or we're waiting on federal leases of funding and it didn't release. And we had a number of these sorts of situations occur, and they're still playing out here in Q4. And we're to the point where we're not sure until we actually see the money come through that we should count on those coming into this time -- this quarter.

So I don't know, the best I can say is just reamplify what Vikram said is we tried to look at lessons learned from our Q3 experience. We tried to make some modeling assumptions based upon our lessons learned in that period. And then we see a significant funnel size, and we're not seeing direct competitive losses attributing to this. So I do expect that this will snap into place. But we're -- we've been having trouble forecasting when these larger orders are going to land.

William Robert Quirk ***Piper Jaffray Companies, Research Division - MD and Senior Research Analyst***

Chris, do you think that the interest outside of your traditional customer base in mass cytometry is contributing at all to the, how should we say it, uncertainty of timing on some of these deals closing? And if that's the case, is there's something that you guys are taking into consideration as you're looking at indications of interest and kind of early interest from parties outside of your traditional kind of academia landscape with mass cyto?

Stephen Christopher Linthwaite ***Fluidigm Corporation - President, CEO & Director***

Yes, I think actually that point is a really, really insightful question, Bill, overall. I think as we have seen a shift in our call patterns and focus and less need to focus on those high-end academic medical centers because we have more established dynamics, they fill up capacity and then they lead to the next order. The other segments, we're back to doing more business development activities. And I think we [were naïve] (corrected by the company after the call) in some of those segments and perhaps even our selling motions didn't fully reflect all the decision-makers that were going to be involved in those -- and the considerations that come into making decisions on technology in those other segments. I think I gave a flavor of some of those insights. And that was part of the reason why I tried to break out, we tried to break out in this call a little more color on markets, a little more color on segments instead of putting them all together

into one gemish. We're trying to break them out for you. And as you might -- as you read into it, we are having learnings in each one of these segments, and we've been shifting our tactics. We started that work already, shifting our tactics on this segment.

William Robert Quirk ***Piper Jaffray Companies, Research Division - MD and Senior Research Analyst***

Okay. Got it. And then two, I think, pretty quick ones from me. First is, Vikram, can you elaborate on the inventory reserve that you took in microfluidics? And then secondly, with respect to the comment in the press release about the active installed mass cytometry base, were any systems decommissioned in the quarter? Just to make sure -- I want to make sure my model was as accurate as possible.

Vikram Jog ***Fluidigm Corporation - CFO & Principal Accounting Officer***

Yes. So let me take the second question first. We always have an active base measurement based on a service attachment and purchases over a certain look back period. And so we constantly are updating and refreshing the active base based on those 2 metrics. I can't speak to the delta in the quarter itself, but that's an ongoing phenomenon. But it certainly has played a role in terms of if you're trying to reconcile your model of how many units we placed in 2019 with the active base that we disclosed today, there is a netting of the systems that went -- that are not active based on our definition.

William Robert Quirk ***Piper Jaffray Companies, Research Division - MD and Senior Research Analyst***

Okay. Got it. And then just a comment on inventory reserve, Vikram?

Vikram Jog ***Fluidigm Corporation - CFO & Principal Accounting Officer***

Yes. Nothing, I mean that is an accounting exercise we go through every quarter based on a judgment on the realizability of inventory valuation. And that's the reserve, but it wasn't a significant amount, but it played a role in the roughly 1 to 1.5 percentage point delta that we were trying to explain in gross profit, but it was one among the 3 explanations. I think the bigger one was production capacity utilization and product mix.

Operator

We have no further questions at this time. I will now turn the call over back to Ms. Agnes Lee. Please go ahead.

Agnes Lee ***Fluidigm Corporation - VP of IR***

Thank you, Charlie. We'd like to thank everyone for attending our call today. A replay of the call will be available on the Investors section of our website.

This concludes the call. We look forward to the next update following the close of the fourth quarter of 2019. Please reach out to us if there are further questions. Good evening, everyone. Charlie, you may now close the call.

Operator

Thank you, ma'am. Ladies and gentlemen, this concludes today's conference. Thank you for your participation. You may now disconnect.