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January 14, 2013

VIA EDGAR

Mr. Terence O'Brien
Accounting Branch Chief
Securities and Exchange Commission
Division of Corporation Finance
Washington, DC 20549

Re: Codexis, Inc.
Form 10-Q for the Fiscal Quarter Ended September 30, 2012
Filed November 7, 2012
File No. 001-34705

Dear Mr. O'Brien:

This letter is in response to your letter of December 14, 2012 to John Nicols, President and Chief Executive Officer of Codexis, Inc. (the "***Company***" or "***Codexis***"), concerning our Form 10-Q for the fiscal quarter ended September 30, 2012, which was filed with the Securities and Exchange Commission (the "***Commission***") on November 7, 2012. For ease of review, we have set forth below in **bold** type each of the numbered comments received from the staff of the Commission (the "***Staff***") and have followed each comment with the Company's response thereto.

Critical Accounting Policies and Estimates, page 24

1. Please tell us whether you have tested goodwill for impairment as a result of the termination of the collaborative research agreement with Shell in September 2012 and describe the results. Explain the basis for your conclusions. Refer to ASC 350-20-35-30.

Response: Yes, we performed a test of possible goodwill impairment as provided under ASC 350-20-35-30, as a result of the termination effective as of August 31, 2012 of the Amended and Restated Collaborative Research Agreement, effective November 1, 2006, as amended March 4, 2009, February 23, 2010 and July 10, 2012 (the "***Shell Research Agreement***"), by and between the Company and Equilon Enterprises LLC dba Shell Oil Products US ("***Shell***").

Our policy is to perform a test for impairment of goodwill annually or when facts and circumstances require such a review. In connection with the preparation of our Form 10-Q for the fiscal quarter ended September 30, 2012, we performed the quantitative impairment test of goodwill on October 1, 2012 (using September 30, 2012 balances) as described in ASC 350-30-65. Our quantitative impairment test consisted of a comparison of the fair value of our net assets as of September 30, 2012 with their carrying amounts. We previously determined that we operate under a single reporting unit and therefore, an appropriate measure of the fair value of our net assets is our market capitalization on the date of the test. As our market capitalization of $113.4 million, excluding any potential adjustment for a control premium, exceeded the carrying amount of our net assets of $93.0 million as of September 30, 2012, this indicated that there was no impairment to our goodwill.

2. Please tell us whether you have reviewed your long-lived assets for impairment, including your intangible assets and your laboratory equipment, due to the termination of the Shell research agreement and related changes in your operations and expected future cash flows. Explain the basis for your conclusions. Refer to ASC 360-10-35-21.

Response: Yes, we determined that the termination of the Shell Research Agreement and related changes in our operations and expected future cash flows were events contemplated under ASC 360-10-35-21 that could indicate that the carrying amount of our long lived assets may not be recoverable. As such, we reviewed our long-lived assets for impairment, including our intangible assets and laboratory equipment.

Our policy is to perform an annual test for impairment of our long-lived assets, including intangible assets and laboratory equipment, when events or changes in circumstances indicate that the carrying amount of the long-lived asset (group) may not be recoverable. Based upon certain indicators of possible impairment, prior to filing our Form 10-Q for the fiscal quarter ended June 30, 2012, we performed an impairment analysis of our long-lived assets, assuming the Shell Research Agreement would terminate on October 31, 2012. The results of this analysis, which were as of June 30, 2012, indicated no impairment to our long-lived assets including intangible assets.

In October 2012, we used the impairment analysis completed in the previous quarter, rolled it forward with updated financial information and determined that no impairment to our long-lived assets existed as of September 30, 2012. Specifically, we refreshed our forecasted net undiscounted cash flows from the second quarter of 2012 to the third quarter of 2012 and updated the carrying value of the net asset group as of September 30, 2012.

Indicators of Impairment

In July 2012, in accordance with the provisions of ASC 360-10, we evaluated our long-lived assets to determine if there were any indicators that such assets may be impaired. Those indicators included:

- We noted we had an operating loss of $12.6 million for the six months ended June 30, 2012 and a history of operating losses. Additionally, our forecasted financial results indicated continuing losses associated with the use of our long-lived assets.
- In April 2012, Shell announced the termination of its cellulosic biofuels program with Iogen Energy Corporation ("***Iogen***"). We are a party to a multiparty Collaborative Research and License Agreement with Shell and Iogen effective as of July 10, 2009 (the "***Multiparty Research Agreement***"). In June 2012, we received a notice from Shell stating that the Research Term (as defined in the Multiparty Research Agreement) of the Multiparty Research Agreement would terminate on June 30, 2012. The termination of the Multiparty Research Agreement did not impact the Shell Research Agreement. Our collaborative research and development revenue from Shell was derived from the Shell Research Agreement and not from the Multiparty Research Agreement.
- On July 10, 2012, we entered into an Exclusive Negotiation Agreement with Shell (the "***Shell Exclusive Negotiation Agreement***") pursuant to which Shell agreed to negotiate exclusively with us through September 1, 2012 the terms of a new agreement under which Shell would grant us certain rights and licenses to develop and sell cellulase enzymes to third parties in the field of biofuels. We also agreed with Shell under the Shell Exclusive Negotiation Agreement that, beginning on August 31, 2012, Shell could elect to reduce the number of full-time employee equivalents ("**FTE(s)**") under the Shell Research Agreement to any number between 13 and 48 with one-day notice.

- In August 2012, included in our Form 10-Q filing for the fiscal quarter ended June 30, 2012, we announced that, although we had not received any formal notice from Shell, we did not expect any continued FTE funding from Shell after the scheduled expiration of the Shell Research Agreement on October 31, 2012.

Given the above facts, as of June 30, 2012 we believed that the facts and circumstances indicated potential impairment of our long-lived assets and we performed an impairment analysis.

Test for Recoverability

For our test for recoverability, we performed the following steps:

- Grouped long-lived assets and liabilities at the lowest level for which there were identifiable and independent cash flows;
- Estimated the future net undiscounted cash flows expected to be generated from the use of the long-lived asset group and its eventual disposal; and
- Compared the estimated undiscounted cash flows to the carrying value of the long-lived asset group.

Asset Group

We determined that we operate under a single reporting unit with one company-wide net asset group. The directed evolution technology patent portfolio (which we refer to as our "**Core IP**") acquired from Maxygen, Inc. ("**Maxygen**") is the primary asset in the net asset group based on both absolute dollars and qualitative importance to our business.

The Core IP is the base technology for all of our activities and it was the only finite-lived intangible asset on our balance sheet as of September 30, 2012. The Core IP is used across all aspects of our research and development ("***R&D***") and impacts all of our current and future products and services. There has been no significant change in the utilization or anticipated life of the Core IP since we acquired the technology patent portfolio from Maxygen in 2010 or as a result of the termination of the Shell Research Agreement.

We do not believe that identification of cash flows associated with our long-lived assets is currently possible at any lower level than entity level. As a result of the pervasiveness of the Core IP underlying all our R&D efforts and current and future product offerings, we determined the Core IP is the primary asset within our asset group. The remaining useful life of the Core IP extends through the fourth quarter of 2016. A number of additional patents comprising the Core IP do not expire until 2019 and beyond.

Net Undiscounted Cash Flows

In July 2012, we prepared a forecasted undiscounted cash flow analysis assuming the Shell Research Agreement would terminate in the fourth quarter of 2012 and that in response, we would implement significant cost cutting measures to offset the lost revenue. We prepared our forecasted undiscounted cash flow analysis through December 31, 2016, consistent with the useful life of the primary asset in our net asset group. This forecasted undiscounted cash flow analysis was prepared using projections which included assumptions surrounding new collaborations for our CodeXol™ detergent alcohols program and the scheduled termination of the Shell Research Agreement on October 31, 2012.

In October 2012, we updated our forecasted undiscounted cash flow analysis based on our actual operating results and related cash flows through the third quarter of 2012 and new information available with respect to the forecasted undiscounted cash flows. We also initiated cost saving measures in the third quarter of 2012.

Comparing the Estimated Undiscounted Cash Flows to the Carrying Value of the Net Asset Group

Based on the work performed as of June, 30, 2012, the forecasted undiscounted cash flows exceeded the carrying value of the net asset group and we concluded that there was no impairment of our long-lived assets and, therefore, no impairment loss was measured. As we did not estimate the fair values of long-lived assets, there was also no incremental ASC 820-10-50 disclosures required.

Based on the work performed in October 2012, the forecasted undiscounted cash flows exceeded the carrying value of our net asset group as of September 30, 2012, we concluded that there was no impairment of our long-lived assets and, therefore, no impairment loss was measured. As we did not estimate the fair values of long-lived assets, there was also no incremental ASC 820-10-50 disclosures required.

Financial Operations Overview, page 24

3. In future filings, please provide a more detailed analysis of the factors that impact your operations, including a complete discussion of known or anticipated trends that may continue to have an impact. Your discussion and analysis is to provide investors with sufficient information to understand the historical trends and the expectations for the future as seen through the eyes of management. Refer to Section 501.04 of the Financial Reporting Codification and SEC Release 33-8350 for guidance. In your supplemental response, please provide us with draft disclosure addressing the following issues:

Response: In response to the Staff's comment, we confirm that in future filings, we will provide a more detailed analysis of the factors that impact our operations, including a complete discussion of known or anticipated trends that may continue to have an impact. We acknowledge that our discussion and analysis should provide investors with sufficient information to understand the historical trends and the expectations for the future as seen through the eyes of management. Below are supplemental draft disclosures addressing the specific points identified in the Staff's comment. Please note that for illustrative purposes we have prepared these supplemental draft disclosures using our financial information as of September 30, 2012 and will update these disclosures as necessary in future filings to reflect the financial information for the periods covered in those filings.

Provide a quantified analysis of the impact on future operations expected from the termination of the Shell agreement.

Response:

*"*The Shell Research Agreement terminated effective August 31, 2012 and as a result we will no longer receive any collaborative research and development revenue from Shell for all periods beginning after October 31, 2012, which will cause a significant decrease in our revenues and cash flows as compared to prior periods. Collaborative research and development revenues recognized from Shell were $62.7 million, $66.1 million and $63.2 million in 2009, 2010 and 2011, respectively, and accounted for 76%, 62% and 51% of our total revenues in 2009, 2010 and 2011, respectively. Collaborative research and development revenues recognized from Shell were $47.0 million and $45.3 million for the nine months ended

September 30, 2011 and 2012, respectively, and accounted for 52% and 56% of our total revenues for the nine months ended September 30, 2011 and 2012, respectively. We do not expect to receive any collaborative research and development revenue from Shell in future periods.

As a result of the termination of the Shell Research Agreement, we initiated a series of cost reduction measures in September 2012. We terminated approximately 174 employees worldwide, including 111 R&D staff and 19 Selling, General and Administrative ("SG&A") staff in the United States. We also closed our Singapore research and development facility. We estimate that we will incur $2.5 million in restructuring expenses related to these cost reduction measures, including severance for terminated employees and other exit-related costs arising from contractual obligations such as closed facilities under lease and equipment disposals. In the three months ended September 30, 2012, we recorded $0.7 million of severance related expenses and we expect to record and pay cash for the remaining $1.8 million during the fourth quarter of 2012 and the first quarter of 2013.

We anticipate these cost reduction measures will generate annual cost savings related to employee compensation costs of $17.2 million, including $3.2 million in SG&A costs and $14.0 million in R&D costs.

Despite the termination of the Shell Research Agreement, we expect to continue our advanced biofuels program, primarily focusing on developing our CodeXyme® cellulase enzymes for use in producing advanced biofuels. We are actively seeking third party funding to support our advanced biofuels program. We are in early stage discussions with multiple parties about potential collaborations, but there can be no assurances that any of our discussions will lead to collaborations or that any new collaboration will fully substitute for the termination of the Shell collaboration. If we are unable to agree to terms with new collaborators that provide us with the financial assistance and infrastructure necessary for us to develop and commercialize our products and execute our strategy with respect to advanced biofuels, we may need to fund this development ourselves, which will have a material adverse effect on our liquidity and financial condition, or we may need to suspend the program, which may have a material adverse effect on our business and prospects."

Please quantify the decrease in sales of your statin-family of products and your sales of products used in on-patent hepatitis C, diabetic and dementia therapies, explain the underlying reasons for the decreases and discuss any known trends or events with the potential to materially impact future operations.

Response:

Three months ended September 30, 2012 compared to three months ended September 30, 2011.

"Product revenues decreased by $5.1 million during the three months ended September 30, 2012 compared to the three months ended September 30, 2011, due to a $2.6 million decrease in sales of our statin-family of products used in making generic equivalents of Lipitor, a $1.8 million decrease in sales of products used in on-patent pharmaceuticals in hepatitis C therapies, and a $1.3 million decrease in sales for products used in on-patent pharmaceuticals in diabetic therapies, partially offset by a $0.6 million increase in sales of other products. The decrease in hepatitis C therapies and diabetic therapies were as a result of delays in orders from our customers for these relatively new products. Sales of our statin-family of products in the three months ended September 30, 2011 benefitted from generics manufacturers stocking inventory in anticipation of the Lipitor patent expiration in November 2011. Our 2012 sales of our statin-family of products were negatively impacted subsequent to the Lipitor patent expiration, as the industry consumed its inventory and delayed additional orders of our statin-family of products."

Nine months ended September 30, 2012 compared to nine months ended September 30, 2011.

"Product revenues decreased by $4.4 million during the nine months ended September 30, 2012 compared to the nine months ended September 30, 2011, due to a $0.8 million decrease in sales of our statin-family of products, and decreases in sales of $2.0 million, $1.3 million, and $0.8 million for products used in on-patent pharmaceuticals in hepatitis C therapies, in diabetic therapies and in dementia therapies, respectively, partially offset by a $0.5 million increase in sales of other products. The decrease in hepatitis C therapies and diabetic therapies were as a result of delayed orders from our customers for these relatively new products. Our 2011 sales of statin-family of products benefitted from generics manufacturers stocking inventory in anticipation of the Lipitor patent expiration in November 2011. Our 2012 sales of statin-family of products were negatively impacted subsequent to the Lipitor patent expiration as the industry consumed its inventory."

Expand your discussion of the decrease in gross margin on product sales in the third quarter to quantify changes in product mix and explain the underlying reasons for the decrease in specific higher margin products.

Response:

Three months ended September 30, 2012 compared to three months ended September 30, 2011.

"Our cost of product revenues decreased by $3.6 million during the three months ended September 30, 2012 compared to the three months ended September 30, 2011 primarily due to the $5.1 million decrease in our product sales, described above.

Gross margins decreased from 18% to 10% during the three months ended September 30, 2012 compared to the three months ended September 30, 2011 primarily due to the decrease in product sales of our products used in on-patent pharmaceuticals in hepatitis C and diabetic therapies due to delayed orders from our customers for these relatively new products, for the reasons described above, which products have higher margins than our statin family of products."

Nine months ended September 30, 2012 compared to nine months ended September 30, 2011.

"Our cost of product revenues decreased $3.8 million during the nine months ended September 30, 2012 compared to the nine months ended September 30, 2011, primarily due to a $4.4 million decrease in product sales, described above.

Our product gross margins were 15% and 14% for the nine months ended September 30, 2012 and 2011, respectively. The gross margin increase of 1% was due to a higher than normal margin on our patent product sales in diabetic therapies in the first quarter of 2012."

You refer to the termination of collaborations in carbon management in December 2011. Please provide an expanded discussion of this and explain the expected and potential future impact to your operations.

Response:

"*Carbon Management Program*

During 2011, our carbon management program received $2.2 million in funding under a 2010 ARPA-E Recovery Act program grant from the U.S. Department of Energy for development of innovative technology to remove carbon dioxide from coal-fired power plant emissions. The grant supported

development of biocatalysts for more efficient carbon capture from these plants and terminated in June 2012. We also had a collaboration in carbon management with Alstom Power, Inc. which included funding for up to 12 FTEs. We recognized $3.8 million in revenue in the nine months ended September 30, 2011 from this collaboration. The collaboration terminated in December 2011.

During 2012, our carbon management program received $1.6 million in funding under a 2010 ARPA-E Recovery Act program grant from the U.S. Department of Energy.

We are no longer actively developing our carbon capture technology and we do not expect any revenues from our carbon management program.

Revenues

Collaborative research and development revenues were $54.1 million for the nine months ended September 30, 2011 and consisted of $47.0 million in revenues under the Shell Research Agreement, $4.2 million of collaborative research and development revenues from customers researching carbon capture technologies and $2.9 million of revenues from pharmaceuticals customers.

Collaborative research and development revenues were $49.0 million for the nine months ended September 30, 2012 and consisted of $45.3 million in revenues under the Shell Research Agreement and $3.7 million for collaborative research and development revenues from pharmaceuticals customers. The research agreement with our primary carbon capture partner terminated in December 2011. Additionally, our award from the U.S. Department of Energy expired in June 2012. We are no longer actively developing our carbon capture technology."

Discuss the decrease in inventories, the underlying reasons, and the expected future impact on operations.

Response:

"Our inventory balance decreased $1.7 million, or 37%, from $4.5 million as of December 31, 2011 to $2.8 million as of September 30, 2012. This decrease was the result of a delay in sales and shipments as of December 31, 2011."

We supplementally advise the Staff that this reduction in inventories will not have any future impact on our operations."

Restructuring Charges All Plans, page 27

4. **In future filings, please provide the complete disclosures required by SAB Topic 5:P.4, including the expected effects on future earnings and cash flows resulting from each restructuring plan, including quantification of the dollar amounts and the period the effects are expected to be realized. In subsequent periods, discuss whether you actually realize the cost savings.**

   Response: In response to the Staff's comment, we confirm that in future filings we will provide the complete disclosures required by SAB Topic 5:P.4, including the expected effects on future earnings and cash flows resulting from each restructuring plan, including quantification of the dollar amounts and the period the effects are expected to be realized. We also confirm that, in subsequent periods, we will discuss whether we actually realized the cost savings.

Liquidity and Capital Resources, page 33

5. **In future filings, please provide a discussion of liquidity that provides a clear picture of the resources available to meet your future cash needs. Discuss changes in capital resources, such as the decrease in marketable securities and other assets. Discuss events, trends and material changes expected to impact your ability to meet cash requirements.**

   Response: In response to the Staff's comment, we confirm that in future filings, we will provide a discussion of liquidity that provides a clear picture of the resources available to meet our future cash needs. We confirm that such disclosure will include a discussion of changes in capital resources, such as the decrease in marketable securities and other assets, and a discussion on events, trends and material changes expected to impact our ability to meet our cash requirements.

6. **Please provide us with a discussion that analyzes the expected and potential impacts to your liquidity and financial position from the termination of your collaboration agreement with Shell. Robustly explain management's expectations and considerations, including your expectations for the results of future operations and the resulting impact on cash flows and liquidity. Discuss the need to obtain third party funding to support your advanced biofuels and outline your prospects. Explain the potential effects on your operations, financial position and liquidity in the event you do not obtain third party funding. In drafting your response, please refer to Item 303 of Regulation S-K, as well as the guidance in Section 501.03 of the Codification of Financial Reporting Policies and Section IV of SEC Release 33-8350.**

Response: Prior to the termination of the Shell Research Agreement effective as of August 31, 2012, we relied on Shell for funding our entire advanced biofuels program. We derived a substantial portion of our total revenues from the Shell Research Agreement. Collaborative research and development revenues recognized under our arrangement with Shell were $62.7 million, $66.1 million and $63.2 million in 2009, 2010 and 2011, respectively, and accounted for 76%, 62% and 51% of our total revenues in 2009, 2010 and 2011, respectively. Collaborative research and development revenues recognized from Shell were $47.0 million and $45.3 million for the nine months ended September 30, 2011 and 2012, respectively, and accounted for 52% and 56% of our total revenues for the nine months ended September 30, 2011 and 2012, respectively. We are currently funding our advanced biofuels program using our cash resources and shall continue to do so until we find alternative sources of funding for the program. We are in early stage discussions with multiple parties about potential collaborations, but we cannot assure you that any of our discussions will lead to collaborations or that any new collaboration will fully substitute for the termination of the Shell collaboration. If we are unable to agree to terms with new collaborators that provide us with the financial assistance and infrastructure necessary for us to develop and commercialize our products and execute our strategy with respect to advanced biofuels, we may need to continue funding our advanced biofuels program ourselves, which will have a material adverse effect on our liquidity and financial condition, or we may need to further reduce the size and scope of the program or suspend the program, each of which may have a material adverse effect on our business and prospects.

As a result of this significant decrease in revenues, we began analyzing potential cost savings actions and implemented a significant restructuring plan in the third quarter of 2012. As part of this restructuring plan, in the fourth quarter of 2012 we terminated approximately 174 of our more than 332 employees worldwide and closed our research facility in Singapore. As a result of these cost reductions, we anticipate total operating cost reductions of approximately $28.0 million for the year ending December 31, 2013.

In addition to the above responses, we also acknowledge that:

- the Company is responsible for the adequacy and accuracy of the disclosure it makes in its filings made with the Commission;
- Staff comments or changes to disclosure in response to Staff comments do not foreclose the Commission from taking any action with respect to the filings the Company makes with the Commission; and

- the Company may not assert Staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Please do not hesitate to contact David O'Toole, Chief Financial Officer and Senior Vice President, at (650) 421-8152 or Barbara Salazar, Senior Director, Corporate Controller, at (650) 421-8125 with any questions or comments regarding this correspondence.

Sincerely,

/s/ David O'Toole

David O'Toole
Senior Vice President, Chief Financial Officer
Codexis, Inc.

cc: John Nicols, Codexis, Inc.
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