



January 12, 2011

Ms. Christine Allen  
Staff Accountant  
United States Securities and Exchange Commission  
Division of Corporation Finance  
100 F Street, N. E.  
Washington, D.C. 20549

RE: Adherex Technologies, Inc.  
10-K for the Year Ended December 31, 2009  
Definitive Proxy Statement on Schedule 14A  
Form 10Qs for Quarterly Periods Ended March 31, 2010, June 30, 2010 and September 30, 2010  
File No. 001-32295

Dear Ms. Allen:

This letter responds to the comments (the "Staff Letter") of the staff ("Staff") of the United States Securities and Exchange Commission (the "Commission") to Adherex Technologies, Inc.'s ("the Company" or "us") filings of Form 10-K for Fiscal Year Ended December 31, 2009, Definitive Proxy Statement on Schedule 14A, Forms 10-Q for Quarterly Periods Ended March 31, 2010, June 30, 2010 and September 30, 2010.

To facilitate the Staff's review, we have set forth below the comments contained in the Staff Letter and, in italics set forth immediate following the comment, our response thereto.

Form 10-K for the Year Ended December 31, 2009

Item 1. Business

Corporate Relationships, page 4

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1. Please revise your disclosure that would expand your description of the development and license agreement with GlaxoSmithKline (GSK) in order to describe the term and termination provisions. Also, please disclose the range of royalties that you may be required to pay GSK.

*We will amend our Form 10-K for the fiscal year ended December 31, 2009 to expand our description of the development and license agreement with GSK in order to describe the term and termination provisions, as well as disclose the range of royalties that we may be required to pay to GSK as set forth below. We note supplementally that the following disclosure omits information set forth in certain portions of the development and license agreement with GSK, as amended, which has been granted confidential treatment by the Commission. Our amended disclosure will include the following:*

*On July 14, 2005, we entered into a development and license agreement with GlaxoSmithKline, or GSK. The agreement included the in-license by our Company of GSK's oncology product, eniluracil, and an option for GSK to license ADH-1. As part of the transaction, GSK invested \$3.0 million in our Company's common stock. On October 11, 2006, the GSK option to license ADH-1 expired unexercised. Under the terms of the agreement relating to eniluracil, we received an exclusive license to develop eniluracil for all indications and GSK retained options to buy-back and assume development of the compound at various points in time. On March 1, 2007, the GSK agreement was amended and we purchased all of GSK's remaining buy-back options for a fee of \$1.0 million. As a result of the amendment to the GSK agreement, we now may be required to pay GSK development and sales milestones and royalties. Specifically, if we file a New Drug Application, or NDA, with the Food and Drug Administration, or FDA, we may be required to pay development milestones of \$5.0 million to GSK. Additionally, depending upon whether the NDA is approved by the FDA and whether eniluracil becomes a commercial success, we may be required to pay up to an additional \$70.0 million in development and sales milestones for the initially approved indication. If we pursue other indications, we may also be required to pay up to an additional \$15 million to GSK for each FDA-approved indication. The GSK agreement continues until terminated by either party in the event of an uncured breach by the breaching party after 60 days prior written notice.*

Item 9A. Controls and Procedures

Management's Report on Internal Control over Financial Reporting, page 29

2. Your disclosure appears to repeat your conclusion on the effectiveness of your disclosure controls and procedures. Also Management's Report does not contain all of the language required by Item 308T(a) of Regulation S-K. Please revise to include the following:

- A statement of management's responsibility for establishing and maintaining adequate internal control over financial reporting that refers to the correct Exchange Act Rules;
- A statement identifying the framework used by management to evaluate the effectiveness of your internal control over financial reporting; and,

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- Management's assessment of the effectiveness of your internal control over financial reporting as of the end of your most recent fiscal year, including a statement as to whether or not internal control over financial reporting is effective.

We will amend our Form 10-K for the year ended December 31, 2009 to remove the duplicative language regarding disclosure controls and procedures and to add the following disclosure required by Item 308T(a) of Regulation S-K as follows:

*Our management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Securities Exchange Act of 1934, as amended. The Company's internal control over financial reporting is a process, under the supervision of the Chief Executive Officer and the Chief Financial Officer, designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of the Company's financial statements for external purposes in accordance with United States generally accepted accounting principles (GAAP). The Company's management conducted an assessment of the effectiveness of the Company's internal control over financial reporting as of December 31, 2009, based on the criteria established in Internal Control – Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission, or COSO. Based on the aforementioned criteria, our management concluded in its assessment of internal control over financial reporting that our internal control procedures, as of December 31, 2009, were effective.*

3. Please tell us why management's failure to provide a complete report on internal control over financial reporting does not impact its conclusion regarding the effectiveness of the company's disclosure controls and procedures as of the end of the fiscal year.

*In light of the Commission's comment number 2 set forth in the Staff Letter and our failure to provide a complete report on internal controls over financial reporting, management has concluded that its disclosure controls and procedures for the period ended December 31, 2009 were ineffective. Accordingly, we will amend our Form 10-K for such period to revise our disclosure as follows:*

*In connection with the preparation of this annual report on Form 10-K/A, an evaluation was carried out by the Company's management, with the participation of the Chief Executive Officer and the Chief Financial Officer, of the effectiveness of the Company's disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934 ("Exchange Act")) as of December 31, 2009. Disclosure controls and procedures are designed to ensure that information required to be disclosed in reports filed or submitted under the Exchange Act is recorded, processed, summarized, and reported within the time periods specified in Securities and Exchange Commission rules and forms and that such information is accumulated and communicated to management, including the Chief Executive Officer and the Chief Financial Officer, to allow timely decisions regarding required disclosures. In designing and evaluating our disclosure controls and procedures, management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives. Based on that evaluation, the Company's management concluded, as of the end of the period covered by this report, that the Company's disclosure controls and procedures were not effective as a result of management's incomplete report on internal controls over financial reporting in this annual report on Form 10-K, as originally filed.*

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Exhibits 31.1 and 31.2

4. Please revise your certifications provided in your Form 10-K and your first and second quarter fiscal 2010 Forms 10-Q to be worded exactly as required by Item 601 (b)(3 1) of Regulation S-K. In this regard, please ensure you address the following items:

- Refer to paragraph 3 where you refer to “this quarterly report”. Remove the report descriptions “annual” or “quarterly,” as appropriate, from all certifications except for the first paragraph.
- Include the language related to internal controls over financial reporting in the introductory section of paragraph 4.
- Revise the parenthetical language in paragraph 4d to refer to the “fourth quarter” in the case of an annual report and not the “third quarter.”

*We will amend our Form 10-K and our first and second quarter fiscal 2010 Forms 10-Q to include revised certifications worded exactly as required by Item 601(b)(31) of Regulation S-K.*

Definitive Proxy Statement on Schedule 14A

Ordinary Matters, page 7

5. Please revise your disclosure describing for each director the particular experience, skills, qualifications and attributes that led you to conclude that each of the directors should serve on your Board. See Item 401(e)(1) of Regulation S-K.

*We undertake to revise our disclosure in our future filings to describe for each director the particular experience, skills, qualifications and attributes that led us to conclude that each of the directors should serve on our Board. Our revised disclosure will include the following:*

*Robert W. Butts*

*Mr. Butts has served as a director of Adherex since April 2007. Mr. Butts is the immediate past Co-Founder and Portfolio Manager of Southpoint Capital Advisors LP, a private investment partnership with more than \$1 billion in assets under management. Prior to Southpoint, Mr. Butts was an analyst for Greenlight Capital, a value-oriented hedge fund. He began his career as a financial analyst in the mergers and acquisitions group at Merrill Lynch. Mr. Butts graduated from Amherst College, where he earned a Bachelor of Science degree with a triple major in mathematics, physics and chemistry. As a result of these and other professional experiences, Mr. Butts has financial expertise and experience with the Company as it has developed within the drug development industry and, as such, is able to provide the Company with unique insight and guidance.*

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Robert C. Andrade

*Mr. Andrade has served as a director of Adherex since July 2009 and Chief Financial Officer since September 2009. Mr. Andrade is a General Partner at DCML, a private investment partnership. Prior to DCML, Mr. Andrade was a portfolio manager for Millennium Partners and a securities analyst for Caxton Associates. He began his career as a financial analyst at Bear Stearns. Mr. Andrade graduated from University of Southern California, where he earned a Masters of Arts degree and Bachelor of Arts degree in economics. As a result of these and other professional experiences, Mr. Andrade possesses particular knowledge and experience in financial analysis and capital markets that strengthen the Board's collective qualifications, skills, and experience.*

William G. Breen

*Mr. Breen has served as a director of Adherex since April 2007. Mr. Breen has served as President of William G. Breen and Associates since 1999. From 1988 to 1999, he held various positions at Simware Inc., a producer of internetworking and connectivity software, including Chairman, President and Chief Executive Officer. Prior to Simware, Mr. Breen was Senior Vice President, Operations at Cognos Inc. and Vice President, Operations at Computel Systems Ltd. Mr. Breen has served on numerous Boards of Directors and began his career at IBM in 1966 following graduation from the University of Waterloo in Science. As a result of these and other professional experiences, Mr. Breen possesses particular financial and management expertise which strengthens the Board's collective qualifications, skills, and experience.*

Claudio F. Bussandri, B.Eng, MBA

*Mr. Bussandri has served as a director of Adherex since April 2007. Mr. Bussandri is the immediate past CEO of McKesson Canada, a leading provider of logistics and products and services in the Canadian health care marketplace. Prior to his tenure at McKesson, Mr. Bussandri was President of Lantic Sugar Limited and has held senior executive positions at Nabisco Brands Limited of Canada and Coffee Club Companies. Mr. Bussandri graduated from McGill University with a Bachelor of Engineering (Mechanical), and subsequently obtained an MBA. Mr. Bussandri is a member of the Board of Directors of the McGill University Health Centre (MUHC), of the Executive Committee of the MUHC Foundation and of the Canadian Council of Chief Executives (CCCE). He is past Chairman of the Board of the Montreal Children Hospital Foundation, former Chairman of CAPDM and of the Food and Consumer Products Manufacturers of Canada. As a result of these and other professional experiences, Mr. Bussandri possesses particular healthcare industry knowledge and experience which strengthens the Board's collective qualifications, skills, and experience.*

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David Lieberman

*Mr. Lieberman is an analyst at Southpoint Capital Advisors LP, a private investment partnership with more than \$1 billion in assets under management. Prior to Southpoint, Mr. Lieberman was an analyst for Tiedemann Investment Group. Mr. Lieberman graduated from University of Pennsylvania, The Wharton School, where he earned a Bachelor of Science degree in economics. In addition to his financial and investment background, as a designee of one of the Company's largest investors, he brings to the Board the perspective of a major stakeholder.*

Rostislav Raykov

*Mr. Raykov has served as a director of Adherex since July 2009 and Chief Executive Officer since July 2009. Mr. Raykov is a General Partner at DCML, a private investment partnership. Prior to DCML, Mr. Raykov was a portfolio manager for Alchem Investment Partners and John Levin & Co. He began his career as a financial analyst at Bear Stearns. Mr. Raykov graduated from University of North Carolina at Chapel Hill, where he earned a Bachelor of Science degree in business administration. As a result of these and other professional experiences, Mr. Raykov has financial expertise and experience with the Company as it has developed within the drug development industry and, as such, is able to provide the Company with unique insight and guidance.*

Honourable Arthur T. Porter, P.C., MD, MBA

*Dr. Porter has served as a director of Adherex since February 2004. Dr. Porter has served as the Director General and Chief Executive Officer of the McGill University Health Centre since January 2004, is a Councilor of the Privy Council for Canada and a member of the Security Intelligence Review Committee (SIRC) for Canada. Dr. Porter was the President and Chief Executive Officer of the Detroit Medical Center from 1999 to 2003. From 1991 to 1998, Dr. Porter served as the Chief of the Gershenson Radiation Oncology Center at Harper Hospital, Radiation Oncologist-in-Chief at the Detroit Medical Center. He has also served as Senior Radiation Oncologist at the Cross Cancer Institute in Edmonton, Alberta and Associate Professor in the Faculty of Medicine at the University of Alberta, Chief of the Department of Radiation Oncology at the London Regional Cancer Centre and Chairman of the Department of Oncology at Victoria Hospital Corporation. Dr. Porter serves as a director of Munder Funds and Air Canada. As a result of these and other professional experiences, Dr. Porter possesses particular healthcare industry knowledge and experience which strengthens the Board's collective qualifications, skills, and experience.*

6. Please revise your disclosure that complies with the requirements of Item 407(h) of Regulation S-K. Specifically, please state why you have chosen to separate the positions of Chairman of the Board of Directors and Chief Executive Officer and why it is you believe this leadership structure is the most appropriate one for you at this time. In addition, please provide a description of how your Board administers its risk oversight function, e.g. whether it does so directly or by acting through one of its committees. The mandate of the Board of Directors that is included as Exhibit A to your proxy statement is not specific on this point.

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We will revise our disclosure in our future filings to include the information required by Item 407(h) of Regulation S-K as follows:

### **Board Leadership Structure**

*The Company's board of directors has chosen to separate the positions of Chief Executive Officer and Chairman of the board. Keeping these positions separate allows the Company's Chief Executive Officer to focus on developing and implementing the Company's business plans and supervising the Company's day-to-day operations and allows the Company's Chairman to lead the board of directors in its oversight and advisory roles. Because of the many responsibilities of the board of directors and the significant time and effort required by each of the Chairman and the Chief Executive Officer to perform their respective duties, the Company believes that having separate persons in these roles enhances the ability of each to discharge those duties effectively and, as a corollary, enhances the Company's prospects for success. The board of directors also believes that having separate positions provides a clear delineation of responsibilities for each position and fosters greater accountability of management.*

### **Risk Oversight**

*The Board of Directors has an active role, as a whole and also at the committee level, in overseeing the identification and management of our principal risks. The Board of Directors regularly receives reports from senior management on areas of material risk to our Company, including our credit, liquidity, operational, legal and regulatory risks. In carrying out its responsibilities under its charter, the Audit Committee reviews our major financial risk exposures and the steps management has taken to monitor and control such exposures, and it also meets periodically with management to discuss policies with respect to risk assessment and risk management. In addition, the Compensation Committee oversees the management of risks relating to our executive and non-executive compensation plans and arrangements, and the Governance Committee manages risks associated with the independence of the Board of Directors and potential conflicts of interest. While each committee oversees certain risks and the management of such risks, the entire Board of Directors is regularly informed through committee reports about such risks.*

### Form 10-Q for Quarterly Period Ended March 31, 2010, as amended

7. Your explanatory note discloses the amendment was filed solely to reflect that it has been reviewed by your independent auditors. However, Note 2 to the interim financial statements and the Cautionary Statement in MD&A states that the Company's independent auditor has not performed a review of these financial statements. Please amend your filing to remove this language in Note 2 and in MD&A. Also, since you have stated that the interim financial statements have been reviewed by an independent public accountant, a report of the accountant on the review must be filed with the interim financial statements. Refer to Rule 8-03 of Regulation S-X and your requirement to file Exhibit 15 if the review report included in the Form 10-Q is incorporated by reference into a registration statement.

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*We will amend our Form 10-Q/A for the Quarterly Period Ended March 31, 2010, to remove the explanatory note and make any conforming changes to the MD&A Cautionary Note and Note 2 to the interim financial statements to eliminate references to the absence of a review of the interim financial statements by the Company's independent auditor. We respectfully submit that, after giving effect to these amendments to the Form 10Q/A, we are not required to file a report of the accountant on the review with the Form 10-Q/A pursuant to Rule 8-03 of Regulation S-X. We supplementally note that the Company does not have any registration statements for which such a report would be incorporated by reference.*

Form 10-Q for Quarterly Period Ended June 30, 2010

Item 4. Controls and Procedures, page 19

8. You state that “we have evaluated the effectiveness of our disclosure controls and procedures...” and, “based on that evaluation, our Chief Executive Officer and Chief Financial Officer have identified two material weaknesses in our internal control over financial reporting.” Based on this disclosure it appears your Chief Executive Officer and Chief Financial Officer have concluded that your disclosure controls and procedures are not effective as of the end of the period covered by this report but you have not stated this conclusion in your disclosure. Please revise your disclosure to provide management’s conclusion on the effectiveness of your disclosure controls and procedures as required by Item 307 of Regulation S-K. This comment also applies to your disclosure in your Form 10-Q for the quarterly period ended September 30, 2010.

*We will amend our Form 10-Qs for the quarters ended June 30, 2010 and September 30, 2010 to add language that specifically states management’s conclusion that our disclosure controls and procedures were ineffective as of such periods.*

9. You also disclose that you do not expect to be able to provide remedial actions for your internal weaknesses until you secure additional financial resources. Please tell us what remedial actions you have undertaken to date and clarify why additional financial resources are necessary beyond those from the private placement in April 2010 in order to implement remedial actions.

*Subsequent to the filing of the 4.02 8-K filing by the Company on November 2, 2010, the Company took remedial actions for our internal weaknesses by contracting additional personnel with experience in the application of U.S. GAAP financial accounting and reporting requirements in order to assist management in its financial accounting and reporting functions. We believe that this has helped remedy, but has not eliminated, a control deficiency that resulted from having one person performing all of our accounting and financial reporting duties.*

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*To finance our continuing operations, we will need to raise additional funds beyond those from the private placement in April 2010, because, as disclosed on page 1 of our Form 10-K for the year ended December 31, 2009, there remains substantial uncertainty of our ability to continue as a going concern and the failure to obtain such funds might require us to further delay, scale back or eliminate certain research and development studies, consider business combinations, or even shut down some, or all, of our operations. Once we are able to secure such additional financing, we anticipate hiring additional personnel with appropriate technical accounting knowledge, experience, and training in the application of U.S. GAAP to supplement our current accounting staff.*

10. Further, it appears that these weaknesses in your internal control over financial reporting have existed prior to June 30, 2010. Please explain to us why management believes that your disclosure controls and procedures were effective at December 31, 2009 and March 31, 2010 considering the incomplete management annual report on internal control over financial reporting and the Item 4.02 8-k.

*Please see our response to Staff Letter comment 3 set forth above regarding management's conclusion on the effectiveness of disclosure controls and procedures as of December 31, 2009.*

*With respect to management's conclusions regarding the effectiveness of disclosure controls and procedures as of March 31, 2010, we respectfully submit that no further amendment to our Form 10-Q for the period ended March 31, 2010 is necessary in light of our proposed amendments to Form 10-K as described in our response to Staff Letter comment 2. Additionally, item 308T(a) of Regulation S-K and Part I, Item 4T of Form 10-Q provide that management is only required to provide its report on the registrant's internal controls on an annual basis and, pursuant to Item 308T(b) of Regulation S-K, there were no changes that materially affected our internal control over financial reporting during the quarter ended March 31, 2010. Furthermore, to the best of management's knowledge, the restatement of the financials for the three and six month period ended June 30, 2010 as disclosed in the Item 4.02 Form 8-K, were not attributable to, and did not affect, the interim financial statements for the quarterly period ended March 31, 2010. As such, management's conclusions on the effectiveness of our disclosure controls and procedures for the March 31, 2010 Form 10-Q were not impacted by such restatement.*

The Company acknowledges that:

- The Company is responsible for the adequacy and accuracy of the disclosure in the filing;
- Staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filing; and

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• 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.

If you have any questions, please call the undersigned at 919-636-5013.

Sincerely

/s/ Robert Andrade

Chief Financial Officer

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