

Mail Stop 3561

November 13, 2006

Dr. Edwin C. Quattlebaum, CEO
MetaMorphix, Inc.
8000 Virginia Manor Road Suite 140
Beltsville, Maryland 20705

**Re: MetaMorphix, Inc.
Amendment No. 1 to Registration Statement on
Form 10-SB
Filed October 3, 2006
File No. 000-51294**

Dear Mr. Quattlebaum:

We have reviewed your filing and have the following comments. Where indicated, we think you should revise your document in response to these comments. If you disagree, we will consider your explanation as to why our comment is inapplicable or a revision is unnecessary. Please be as detailed as necessary in your explanation. In some of our comments, we may ask you to provide us with supplemental information so we may better understand your disclosure. After reviewing this information, we may or may not raise additional comments.

Please understand that the purpose of our review process is to assist you in your compliance with the applicable disclosure requirements and to enhance the overall disclosure in your filing. We look forward to working with you in these respects. We welcome any questions you may have about our comments or on any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

Item 1. Description of Business, page 2

General

1. Please discuss the principal terms of the License Agreement between Genetics Technologies Limited and MetaMorphix, Inc. that was filed as Exhibit 10.32.

2. We note your response to comment 19 from our letter dated June 2, 2005. Please discuss the principal terms of the Vido Technology Agreement between the University of Saskatchewan and MetaMorphix International Inc. and discuss the impact of terminating such agreement upon the company's business. See Items 101, 303 and 601 of Regulation S-B.

Overview, page 2

3. We note the disclosure on page 2 regarding the agreements to provide DNA testing services to American Kennel Club, United Kennel Club, American Angus Association, Red Angus Association and American Bucking Bull Association. Please discuss the principal terms of these agreements and file the agreements, if necessary, as exhibits pursuant to Item 601 of Regulation S-B.
4. Please explain the statement on page 3 that "we licensed to Wyeth human therapeutics applications of our GDF technology in exchange for which we acquired Wyeth's equity interest in us ..."

Our Proprietary Technologies and Products, page 4

5. Please explain the statements on page 6 that, "We are exploring opportunities for our Genius-Whole Genome System with a leading chicken breeder. However, we may be unable to enter into arrangements with any additional customers."

Current Animal Genomic Products and Services, page 6

6. We note the disclosure that the company's genotyping products were developed using internal research and development resources. Please discuss whether the company must pay licensing fees, royalties or similar payments on revenues from sales of products and services listed in this subsection.

Licenses, Acquisitions and Collaborative Agreements, page 8

Celera Acquisition, page 8

7. Please discuss whether the company is in breach of its obligations under the Celera License Agreement and, if so, discuss the possible effects of such breach.
8. We note the disclosure on page 9 that the company will pay "consideration we receive from a collaboration entered into prior to February 28, 2006 in the swine sector." Please discuss any agreements and the effect upon the company for any collaboration entered into after February 28, 2006.

Growth and Differentiation Factor Technology, page 10

9. Please explain in more detail the statement on page 11 that “failure to achieve certain payment and performance milestones may cause termination of the licenses granted to us in the Agreement.” Also include any related material risks in the risk factor section.

Chicken Commercial Licensing, page 9

10. We note your response to comment 18 from our letter dated June 2, 2005 and reissue in part our prior comment. Please describe in more detail the “Letters of Intent” and “Limited Licenses Agreements” and name the two chicken producers.
11. We note your response to comment 27 from our letter of June 2, 2005. Please discuss the principal terms of the agreement if the information would be important to investors. Also, please file all material agreements as exhibits pursuant to Item 601 of Regulation S-B.

Risk Factors, page 18

Risks Related to the Ownership of Our Securities, page 26

12. We note that the last risk factor regarding compliance with the Sarbanes-Oxley Act is a general risk that applies to all public companies. Please revise the risk factor to address a specific risk to the company or remove.

Item 2. Management’s Discussion and Analysis or Plan of Operation, page 28

Critical Accounting Policies, page 29

13. We note your response to prior comment 39 and the disclosure that you recognize revenue from milestone payments upon achievement of the related milestone. Please expand the disclosure on pages 29 and F-9 to clarify your method for allocating consideration to each of the deliverables (i.e. milestones) on a contract. Tell us the accounting literature that supports your treatment.

Summary of Contractual Obligations, page 32

14. On the balance sheet, we note the long term debt balance of \$19,766,221 as of December 31, 2005. In the table on page 32, you state the long term debt obligations equal \$25,376,520. Please tell us what accounts and amounts encompass the difference between what is reported on the balance sheet and this table.
15. Please reconcile the accrued interest on the balance sheet of \$3,472,477, which includes \$1,188,332 of long term interest, with the \$5,221,743 of interest due in less than one year on the contractual obligations table.

16. Please reconcile the capital lease obligations of \$2,284,145, as disclosed on the contractual obligations table, with the capital lease obligations of \$198,569 reported in Note 12 to the financial statements.

Item 4. Security Ownership of Certain Beneficial Owners and Management, page 44

17. We note your response to comment 52 from our letter of June 2, 2005 and we reissue in part our prior comment. In your response, you state that you have named Applera Corporation's Chairman, President and Chief Executive Officer. However, we were unable to locate this disclosure in the Form 10-SB. Please revise accordingly.
18. For New Frontiers Capital LLC, please provide the name(s) of the natural person(s) with voting or dispositive control over the securities.

Financial Statements

Note 2 – Significant Accounting Policies, page F-9

Concentration of Credit Risk, page F-10

19. Revise to include the disclosures required by paragraph 39 of SFAS 131.

Note 11 – Income Taxes, page F-21

20. On page 20, you state you are delinquent in filing certain federal and state tax returns. Revise this footnote and MD&A to include this information. Also disclose the amount of any interest and penalties due to the taxing authorities.

Note 12 – Commitments and Contingencies, page F-23

Litigation, page F-24

21. Disclose the date you became aware of the lawsuit and claim against you. With respect to the lawsuit, you state the amounts in dispute are due to "offsets made prior to the bankruptcy at Mr. Dunlap's direction." Please revise to clarify the meaning of this clause. You also discuss a claim by Regions Bank against you. Disclose the amount Regions Bank is claiming you owe them for the breach.

Note 13 – Debt, page F-25

Short-Term Notes Payable, page F-25

22. On pages 63 and 64, you state the 10.9% and 8% promissory notes, respectively, are past due. We reiterate our request from our previous comment 72 for you to disclose the date the notes became due. Also, if the notes were past due during the periods presented, please disclose this and also revise to include any amended terms including, but not limited to, any changes in maturity date, interest rates, penalties, and conversion rights.
23. On page F-26, you state holders of the 10.9% notes have the right to convert their principal and interest at \$4.00 per share. On pages 63-64 you state these notes are convertible into common stock at varying prices upon the occurrence of a financing raising at least \$10,000,000 in connection with a public offering. Please revise to provide consistent information throughout the document.

Note 17 – Related Party Transactions, page F-44

24. Refer to our previous comment 77. We note the various related party loans described on pages F-27, F-28 and F-44. The total amount of the loans disclosed appears to equal \$1,139,498. On pages 57 and 58, we note discussion of the remaining \$445,000 of loans outstanding as of December 31, 2005. Revise to include disclosure of these loans in accordance with SFAS 57. Also, with respect to the \$250,000 in related party bridge loans, revise to disclose the nature of your relationship with the lender(s).

Exhibits

25. Please file as exhibits, copies of the secured convertible promissory notes that were issued during the past year. See Item 601 of Regulation S-B.

Periodic Reports

26. Revise the periodic reports to conform to the requested changes to the Form 10-SB as applicable.

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As appropriate, please amend your filing and respond to these comments within 10 business days or tell us when you will provide us with a response. You may wish to provide us with marked copies of the amendment to expedite our review. Please furnish a cover letter with your amendment that keys your responses to our comments and provides any requested supplemental information. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your amendment and responses to our comments.

You may contact Babette Cooper at (202) 551-3396 or Terence O'Brien at (202) 551-3355 if you have questions regarding comments on the financial statements and related matters. Please contact Thomas Kluck at (202) 551-3233 with any other questions.

Sincerely,

John Reynolds
Assistant Director

cc: Thomas Prescott Russo
Fax (301) 617-9075