RNA expression/drug prediction report

(mock up)

Table of data elements

Patient : **Thomas Menino**
Physician: **Derek Shepherd, MD**
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Prepared by: **Cartesian Bio (www.cartesian.bio)**

1. Tissue assessment

A colonoscopy tissue sample (identified as L357922) was collected on April 23, 2016 at Cincinnati Children's Hospital from Dr. Shepherd. It was preserved at room temperature in RNAlater tube for no longer than 4 days before RNA microarray scanning.

RNA was scanned using Affymetrix Human Gene ST and Human Genome U133 Plus 2.0 Arrays and compared to several Cartesian standardized control data sets.

3. Molecular pathology report

3a: Overall Impression:

As shown in [currently non-existent figure 1 which is the same as the drug figures but without the arrows], based on the expression pattern of biopsied material studied, the patient is well outside the cluster of patients that have previously been found to be without inflammatory bowel disease. Also, the patient is outside the main cluster of patients with IBD. This suggests that his disease is atypical in its molecular characteristics compared to the other patients. Whether this is because the underlying cause is different or because the disease is a more extreme version of the more common cases cannot be determined from this study.

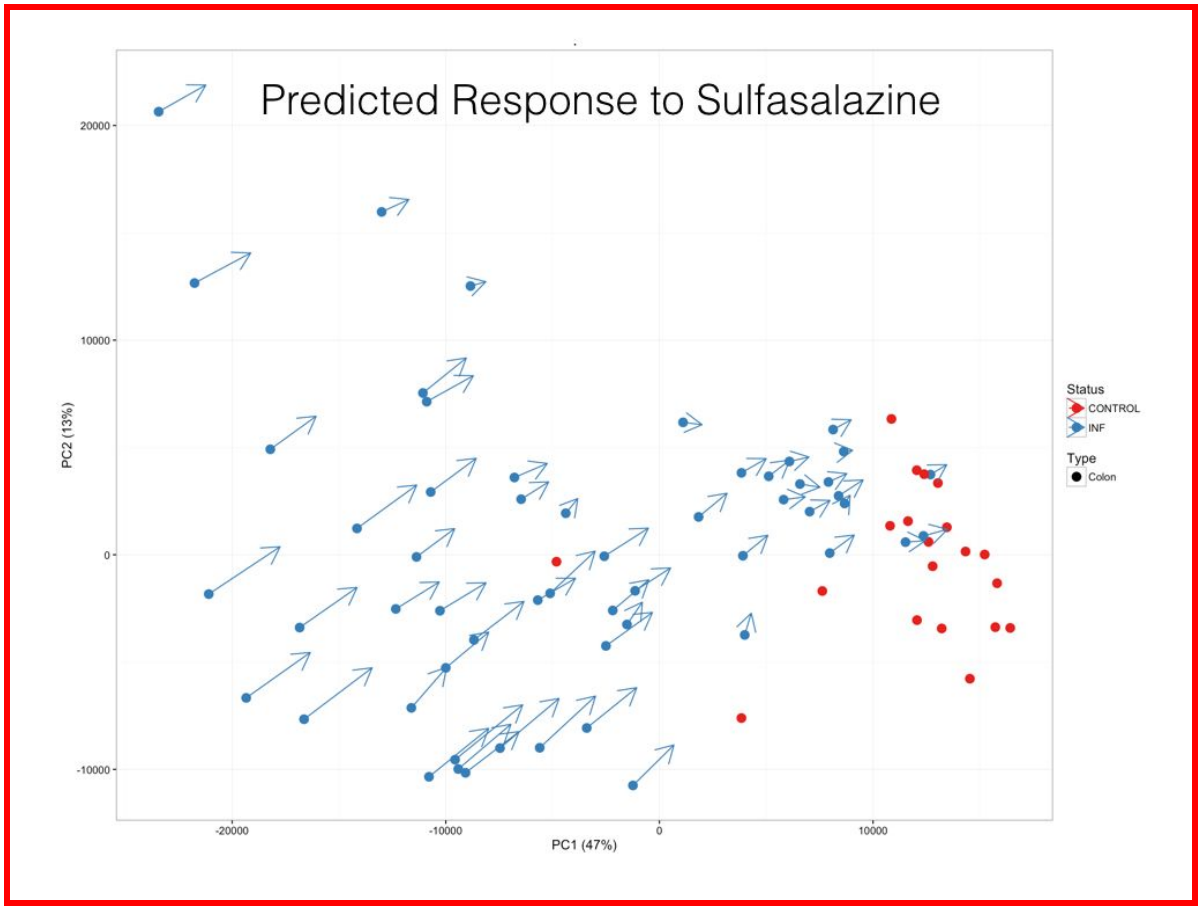
3b: Specific gene dysregulation:

Gene expression of the sampled tissue was compared against a reference database of comparable healthy tissue. We focus here on those genes most often dysregulated in inflammatory bowel disease. However in our recommendations for possibly effective medications, Cartesian does not use a single gene but ALL the thousands of genes that are expressed in the tissue sample.

The following genes are overexpressed in the sampled tissue: **SAA1** (Serum Amyloid A1, frequently expressed in tissue injury and inflammastion) **, REGL**

Overexpression of both these two genes is common in Crohn's Disease but more often in intestinal tissue than in colonic tissue

The following genes are underexpressed in the sampled tissue: **SLC14A2, TSLP**



4. Figures 2A and 2B

Recommendations of potentially effective drugs for this patient:

Of all the conventionally used medications in IBD that we have evaluated (see list in #5 below) only 1 showed any efficacy as estimated by the calculated effect of the drug on this patient's expression profile. This one drug is Sulfasalazine and as can be seen on inspection of Figure 2a the effect of Sulfasalazine in this patient is much less than for other patients with inflammatory bowel disease.

5. Molecular information about the drugs

How we figure out which drugs are included in the list.

A. Sulfasalazine
B. Adipiodone
C. Atenolol

6. Review by Consulting Physician

I have reviewed this document and I find the recommendations to be consistent with the data.

Signed,

Douglas Ross, MD PhD
Boston Children's Hospital
Harvard Medical School
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provider has ultimate responsibility for all treatment decisions made with regard to a patient including any made on the basis of a patient's genotype.

Cartesian Bio RNA Recommendation is covered by U.S Patent No. 9,111,999