

C8 Science Panel

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Parkersburg: March 26, 2009

C8 and immune markers in adults in the Mid-Ohio Valley

Fletcher, Tony¹ for the C8 Science Panel

¹London School of Hygiene and Tropical Medicine, London, United Kingdom.

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Why look at immune system?

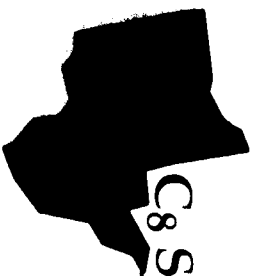
- Animal tests indicate C8 disturbs normal immune function
- Immune system important in protecting against disease
- Almost no human data (one Italian study of only 56 workers, looking at only two markers. IgG, IgM: no evidence of change in C8 linked to change in these markers)

Data used for immune analyses

- Analysis of data already collected in the C8 Health Project
- Serum and questionnaire data collected in July 2005-July 2006
- Final data, after checking and repeated lab analyses, turned over to Science Panel by Brookmar mid 2008
- Data cleaning and analyses underway, working in partnership with WVU on joint reports
- Results here focus on adults, analyses are ongoing on children

Analyses done

- All adults 18+ in C8 health project
- 29,272 Female, 26,536 Male
- Data available on 6 immune markers
- 4 Immunoglobulins, 1 autoimmune disease marker, 1 inflammation marker
- Analyses take into account other factors which may hide or mislead associations: age, sex, ethnicity, obesity, smoking, drinking.



Results

For each marker we looked at:

1. Is there a trend of change of marker with changing levels of C8?
2. What is the shape of the relationship?
3. If there is a change, is it a big change?
4. Is there any difference between men and women?
5. Show results as graphs to reveal trends.



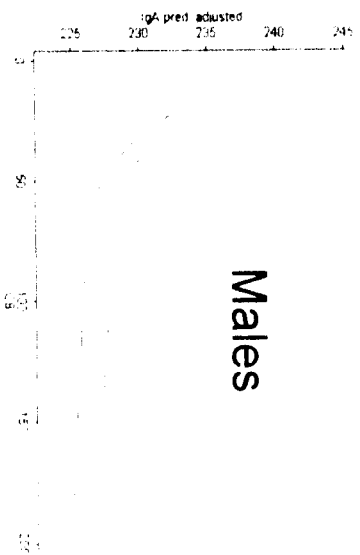
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3 with clear trends

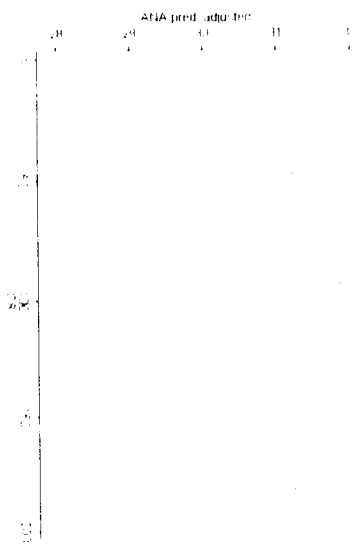
IgA Immunoglobulin A

Antinuclear Antibodies ANA

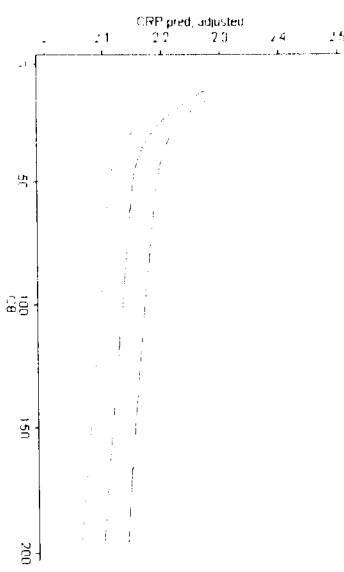
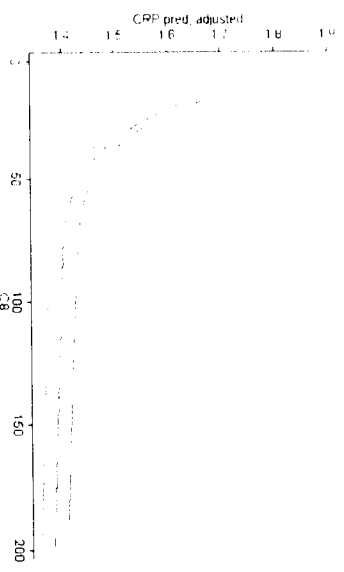
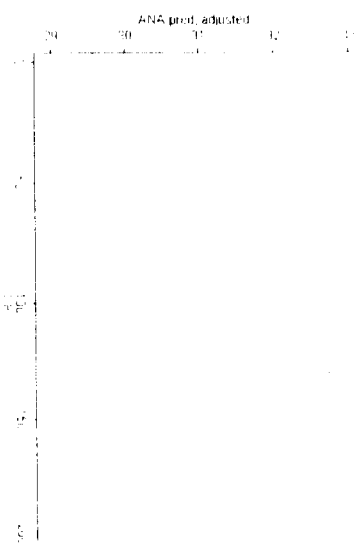
C Reactive protein CRP



Males



Females

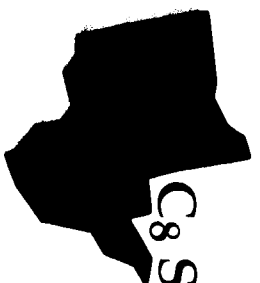


Downward trend suggesting immune suppression

Upward trend of indicator of autoimmune disease

Reducing trend for marker of inflammation

* Adjusted for age, bmi, ethnicity, smoking, alcohol

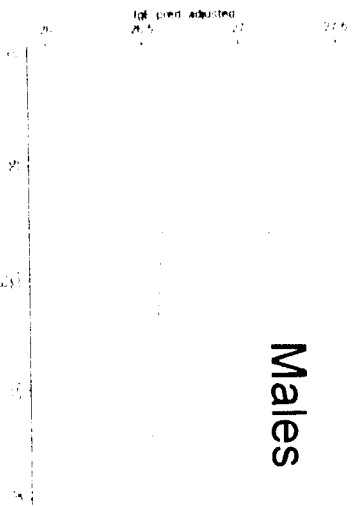


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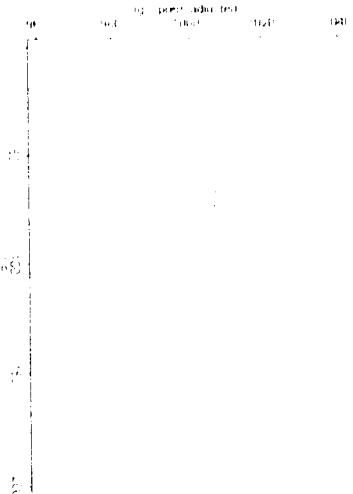
Little or no consistent relationships for 3 other immune markers

Immunoglobulin IgE

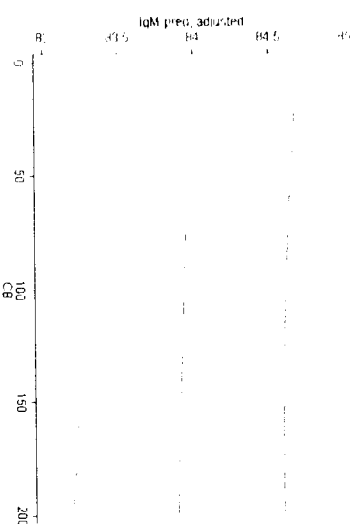
Males



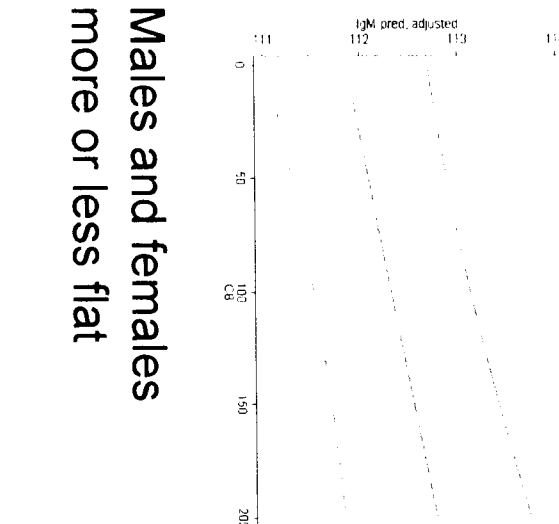
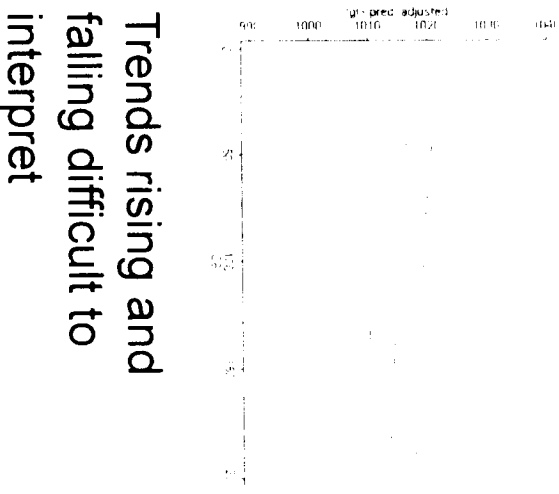
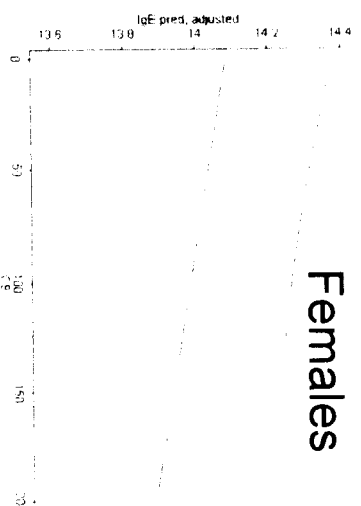
IgG



IgM



Females



Trend for females may be due to chance

Trends rising and falling difficult to interpret

Males and females more or less flat

* Adjusted for age, bmi, ethnicity, smoking, alcohol

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Summary of results

Strong statistical association, consistency between

sexes:

- Significant +ve relationship with ANA
- Significant –ve relationship with IgA
- Significant –ve relationship with CRP

Weak statistical association:

- Females only, fall in IgE with PFOA

No relationship or no consistent relationship

- IgM, IgG



Ongoing work 1

Present these results for open scrutiny:

- Status report filed with Court
- Summary of results presented today to press and public
- Presented last week at meeting of immune specialists at Society of Toxicology
- Preparation and publication of detailed technical report

Future work will collect more data to deal with uncertainties in these results

Ongoing work 2

Science panel study will carry out additional interview and blood sampling in a sample of the population (800)


Several Components:

- Repeated measures over time of clinical markers
- Collection of data on infectious disease incidence
- Additional markers of immune status
- Assessment of modification of vaccination efficacy



Science Panel communications

New newsletter
will provide
rapid updates
on these and
future outputs of
science panel
work.

 C8 Science Panel
Newsletter
C8 Science Panel Newsletter #1
March 26 2009
Contents: C8 Science Panel News
1 Science Panel launches e-Newsletter
2 Birth outcomes and C8
3 Clearance of C8 after stopping exposure
4 Immune markers and C8
5 Science panel closes new consents

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Thank you

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