

# Aspergillus IgG antibody testing in allergic and chronic aspergillosis

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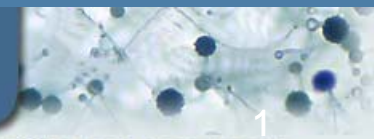
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INVASIVE ASPERGILLOSIS ANIMAL MODELS

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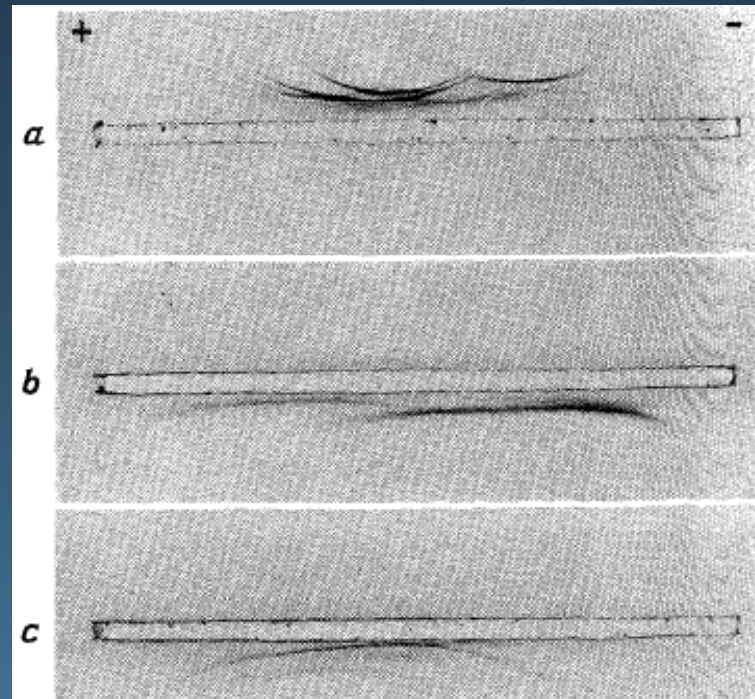
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# Aspergillus IgG antibodies

- Cornerstone of diagnosis for chronic pulmonary aspergillosis and aspergilloma
- Important for diagnosis and therapy monitoring of chronic invasive *A. flavus* sinusitis
- Component of diagnostic criteria for allergic bronchopulmonary aspergillosis

# Aspergillus precipitins



**Electrophoresis of solutions of freeze-dried extracts (40 mg. per ml.) of cell-saps of *A. fumigatus*, *A. nidulans*, and *A. flavus*:**

(a) *Aspergillus fumigatus* aspergilloma: multiple precipitation arcs against *A. fumigatus* extract above, and no reaction to extract of *A. flavus* below.

(b) *Aspergillus nidulans* infection: multiple precipitation arcs (some faint) to *A. nidulans* below, and no reaction to *A. fumigatus* above.

(c) *Aspergillus flavus* aspergilloma: multiple precipitation arcs to *A. flavus* below, and no reaction to *A. fumigatus* above.

Longbottom et al, Lancet 1964;1:588

# Method comparison

83 adult patients attending the National Aspergillosis Centre  
72 patients attending the Manchester Adult Cystic fibrosis Unit

Serum was sent

- 1) ImmunoCAP® Specific IgG *A. fumigatus* assay (Phadia)  
ImmunoCAP® result of >40mg/L was considered positive.
- 2) *A. fumigatus* precipitating antibodies by counter immunoelectrophoresis (CIE)  
the number of precipitating lines and titre was recorded.

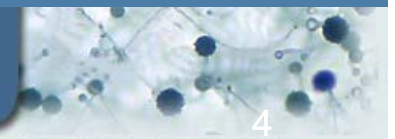
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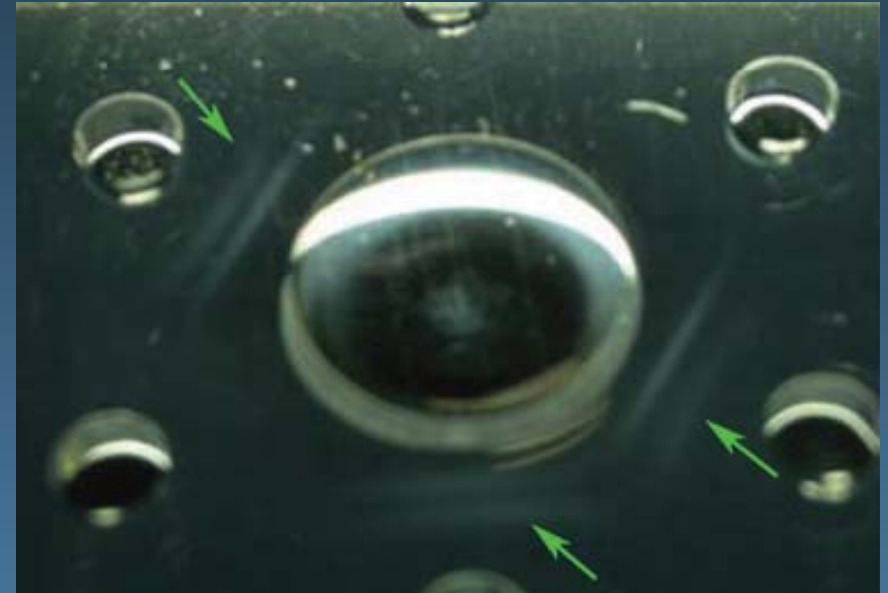
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# Different methods

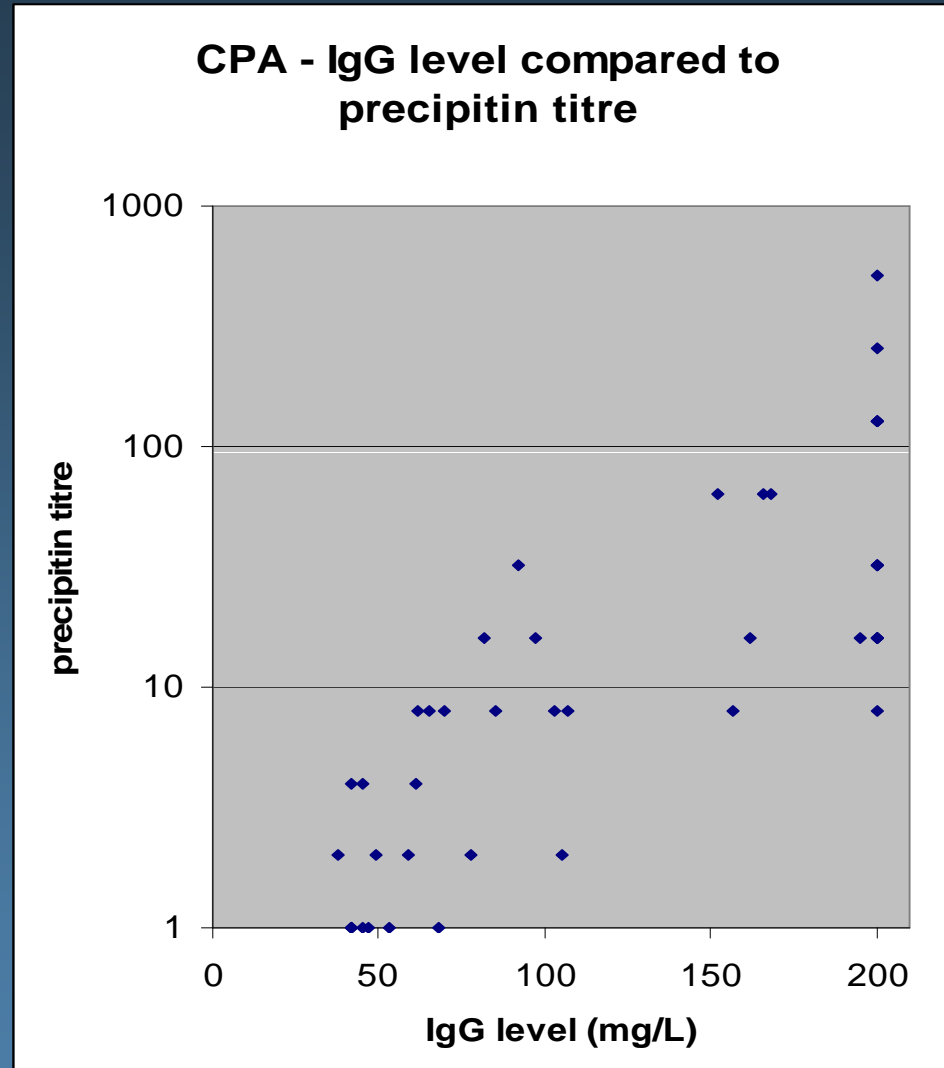
ImmunoCAP® (Phadia)



Counter immunoelectrophoresis (CIE)

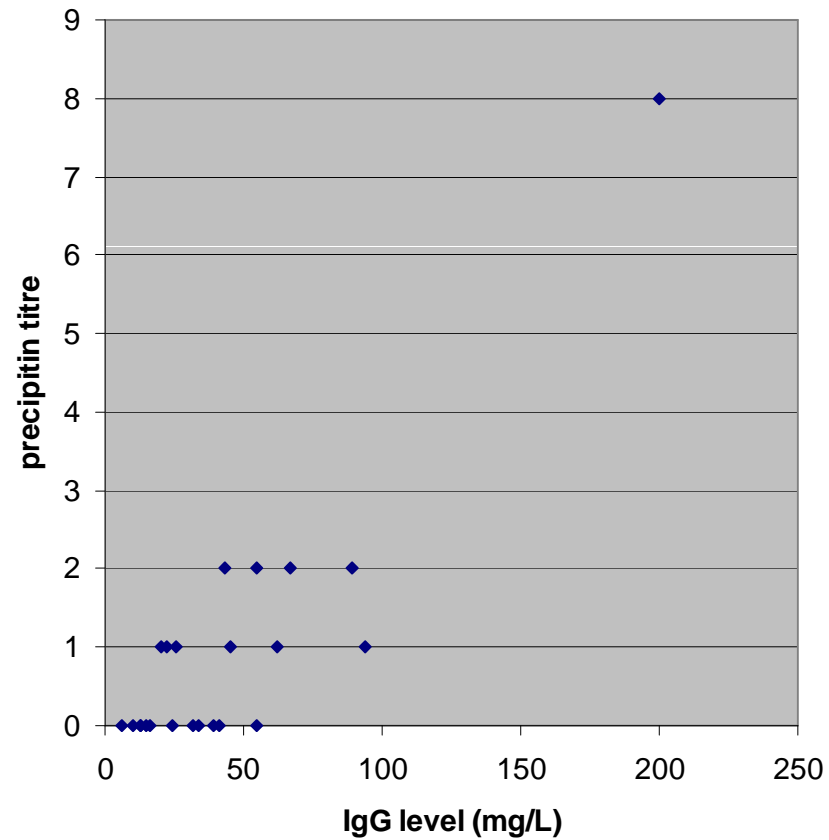


# Chronic pulmonary aspergillosis



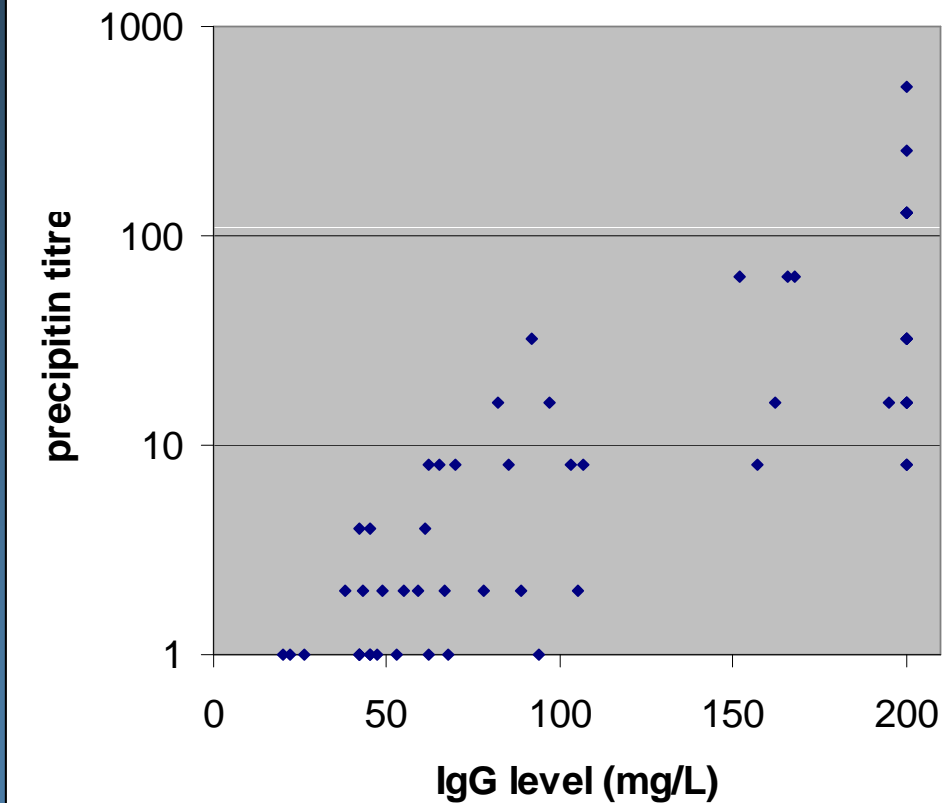
# ABPA

ABPA - IgG level compared to precipitin titre



# CPA and ABPA

**CPA and ABPA - IgG level compared to precipitin titre**



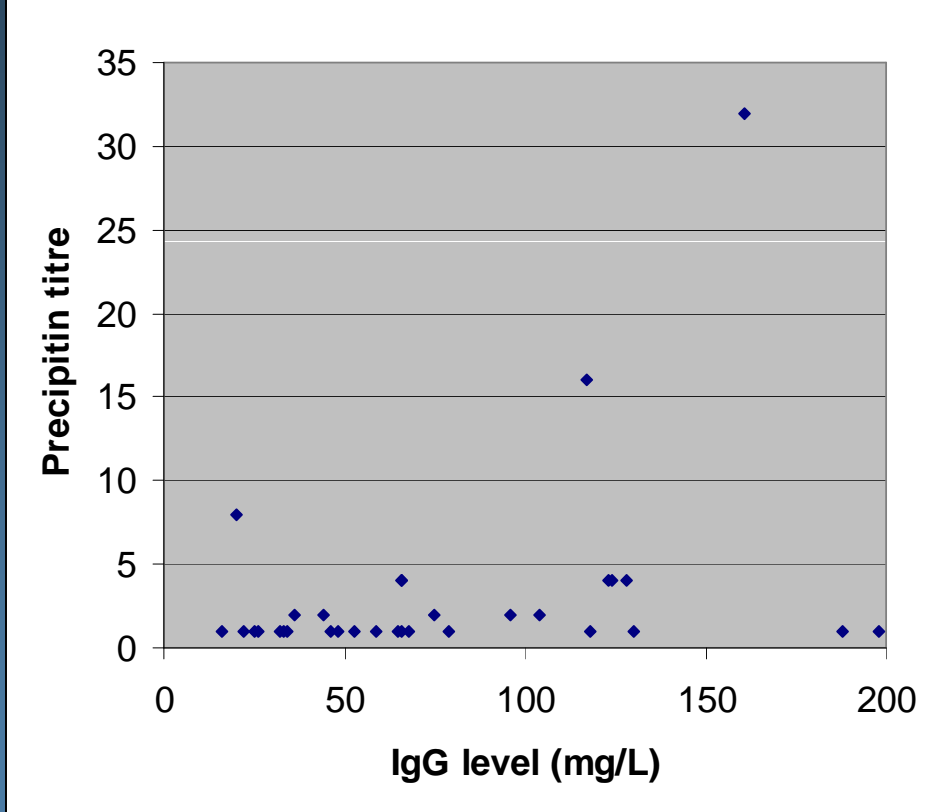
93% concordance between a positive IgG result and a positive precipitin result

Correlation between IgG level and precipitin titre  
( $r=0.903$ ,  $p<0.01$ )



# Cystic fibrosis

**Cystic Fibrosis - IgG level compared to precipitin titre**



49% concordance between a positive IgG result and a positive precipitin result

Correlation between IgG level and precipitin titre  
( $r=0.199$ ,  $p=0.11$ )

# Conclusions

- Standardisation of *A. fumigatus* IgG antibodies required in different populations
- Understanding of cross-reactions with other non-*fumigatus* species lacking
- IgG antibody sero-conversion has potential for retrospective diagnosis of IA

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