

● General Autoimmunity;
Current Issues and New
Developments

Workshops in Portugal 2006

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Immunochemistry

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General Autoimmunity - 2006

● UK Participants 298

● Non-UK Participants 474

Web entry system: 35%

Response rate: approx 80%

General Autoimmunity - 2006

- Rheumatoid factor
- Thyroid microsome/peroxidase antibody
- Mitochondrial antibody
- Liver-Kidney microsome (LKM-1) antibody
- Smooth muscle antibody
- Gastric parietal cell antibody

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General Autoimmunity - 2006

	Pos	Neg	Equivocal
Rheumatoid Factor	5		
Thyroid Peroxidase Ab	5		
Mitochondrial Ab		4	1
LKM-1 Ab	1	4	
Smooth Muscle Ab	2	3	
Gastric Parietal Cell Ab	3	2	

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Rheumatoid Factor – 2006

Manufacturer	061	062	063	064	065
Beckman	Positive 100%	Positive 95%	Positive 78%	Positive 100%	Positive 100%
Behring	Positive 98%	Positive 91%	Positive 72%	Positive 52%	Positive 98%
Fujirebo/Mast	Positive 100%	Positive 87%	Positive 86%	Positive 93%	Positive 93%
Olympus	Positive 100%	Positive 95%	Positive 100%	Positive 95%	Positive 100%
ORGen Tec	Positive 88%	Positive 100%	Positive 55%	Positive 76%	Positive 94%
Roche	Positive 98%	Positive 90%	Positive 90%	Positive 96%	Positive 100%

Minimum 10 users

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Rheumatoid Factor – 2006

Manufacturer	061	062	063	064	065
All Manufacturers	88	49	38	47	89
Beckman	69	42	30	51	75
Behring	103	45	29	27	75
Fujirebo/Mast	44	21	67	31	92
Olympus	81	71	47	49	74
ORGen Tec	45	58	37	61	48
Roche	63	28	36	28	66

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UK NEQAS works with experts in their field and with the diagnostic industry to investigate anomalies

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Rheumatoid Factor - 2006

Distribution 063

Issue surrounding reference interval Behring assays	20 IU/ml
Significant number of labs reporting but also reporting	<20 as positive >20 as negative
Behring Mean Value	29 IU/ml

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Rheumatoid Factor - 2006

Samples 0621 and 0641 – identical !!

Issue surrounding reference interval
Behring assay re-standardised

15 IU/ml

0621
Positive 91%

0641
Positive 52%

but evidence that thig proportion of labs would have reported 0641 as positive if customers had used recommended interval

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Citrullinated Proteins – Initial Pilot Study

Manufacturer	Positive	Negative	Mean
Aesku	3	0	790.0
Axis Shield	19	0	74.0
BL-Diagnostika	1	0	629.0
Bounty	1	0	60.0
Diasorin	2	0	588.8
EuroDiagnostica	28	0	612.8
Euroimmun	6	0	71.3
Genesis	6	0	121.6
In House	1	0	61.0
Inova	32	0	277.5
Menarini	2	0	215.9
Orgentec	6	0	704.4
Palex	1	0	566.0
Phadia	39	0	313.9

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Citrullinated Proteins – Initial Pilot Study

Manufacturers	Mean	Observed Range
Axis-Shield	74	29 - 97
EuroDiagnostica	612	259 - 1052
Euroimmun	71	6 - 144
Inova	278	129 – 768
Orgentec	704	474 – 937
Phadia	314	192 - 503

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Thyroid Peroxidase Antibody - 2006

Manufacturer	061	062	063	064	065
Bayer	Positive 100%	Positive 100%	Positive 100%	Positive 100%	Positive 100%
DPC Immulite 2000	Positive 94%	Positive 97%	Positive 100%	Positive 100%	Positive 97%
Fujirebo/Mast	Positive 100%	Positive 100%	Positive 100%	Positive 100%	Positive 100%
Grifols AESKU	Positive 100%	Positive 100%	Positive 100%	Positive 100%	Positive 95%
Hycor Biomed	Positive 100%	Positive 100%	Positive 100%	Positive 100%	Positive 100%
Inova	Positive 37%	Positive 88%	Positive 92%	Positive 100%	Positive 100%
ORGen Tec	Positive 100%	Positive 100%	Positive 100%	Positive 97%	Positive 97%
Phadia ImmunCAP	Positive 60%	Positive 100%	Positive 100%	Positive 100%	Positive 100%
Phadia Varelisa	Positive 86%	Positive 100%	Positive 100%	Positive 100%	Positive 100%
Roche	Positive 100%	Positive 100%	Positive 100%	Positive 100%	Positive 100%

Minimum 10 users

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Thyroid Peroxidase Antibody - 2006

Manufacturer	061	062	063	064	065
All Manufacturers	188	487	374	297	258
Bayer	421	1456	1210	911	818
DPC Immulite 2000	75	300	213	166	147
Grifols AESKU	143	459	337	233	187
Hycor Biomedical	527	676	591	453	300
Inova	114	217	149	228	130
ORGen Tec	371	704	487	330	293
Phadia ImmunoCAP	94	256	193	166	112
Phadia Varelista	113	380	249	245	134
Roche	124	263	203	167	150

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Thyroid Peroxidase Antibody - 2006

Distribution 061

	Units	Pos
ImmunoCAP	94	60%
Varelista	113	86%

- ? Significant difference in calibration
- ? Significant difference in reference interval
- ? Significant difference in specificity

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Antimitochondrial Antibody - 2006

Manufacturer	061	062	063	064	065
Binding Site	Negative 100%	Negative 100%	Negative 98%	Negative 98%	Equivocal
BioDiagnostics	Negative 100%	Negative 100%	Negative 100%	Negative 100%	Positive 75%
Bio-Rad/Kallest	Negative 100%	Negative 100%	Negative 84%	Negative 96%	Negative 63%
Biosystems	Negative 97%	Negative 97%	Negative 95%	Negative 100%	Positive 52%
Diasorin	Negative 100%	Negative 100%	Negative 91%	Negative 100%	Positive 53%
Euroimmun	Negative 100%	Negative 100%	Negative 90 %	Negative 100%	Positive 82%
Immco	Negative 100%	Negative 94%	Negative 95%	Negative 100%	Positive 82%
Inova	Negative 95%	Negative 100%	Negative 86%	Negative 100%	Negative 68%

Minimum 10 users

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Antimitochondrial Antibody - 2006

Sample	Analyte	Positive	Negative	Target Response
0653	Mitochondrial Antibody	217	155	Equivocal
0653	LKM-1 Antibody	16	319	Negative

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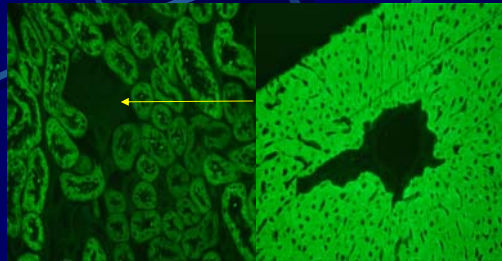
Antimitochondrial Antibody - 2006

The staining pattern for sample 0653 was not typical of M2 in that the gastric parietal cells did not show the usual granularity.

There was also little differentiation in the staining of the proximal and distal tubules in the kidney.

The variation in results submitted to the scheme may be explained by differences in screening dilutions used by individual laboratories.

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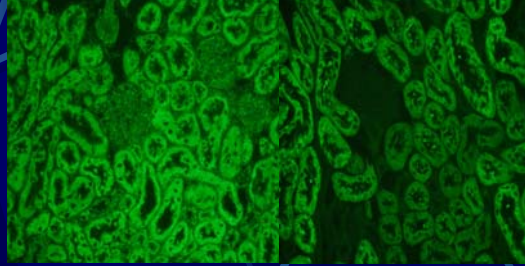
Anti-LKM-1

Left: Kidney section; typical staining of proximal tubules, a flat fluorescence signal with the nuclei unstained. The yellow arrow indicates an unstained glomerulus. Glomeruli do not contain the target antigen of anti-LKM-1 (P450-2D6)

Right: Liver section; again a typical flat fluorescence signal is seen in the hepatocytes, nuclei unstained. The central dark area is a portal tract. The connective tissues in this area does not contain the target antigen of LKM-1 (P450-2D6)

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Comparison of anti-LKM-1 and anti-mitochondrial antibody (M2)

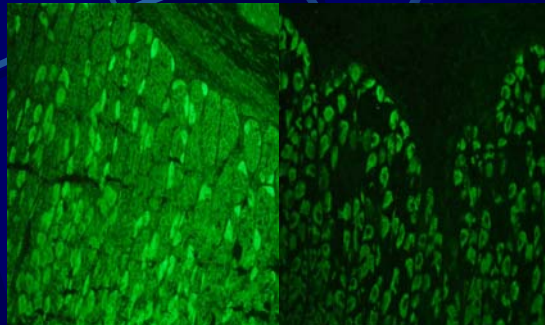


Left: Anti-M2 – the glomeruli are clearly visible, there are 3 in this field. The overall staining is granular and all of the tubules are stained to some degree.

Right: Anti-LKM-1 for comparison. Total lack of granularity and non P450-2D6 containing tissues are completely blank. Top centre a glomerulus, lower left distal tubules.

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Comparison of anti-GPC and anti-mitochondrial antibody (M2)

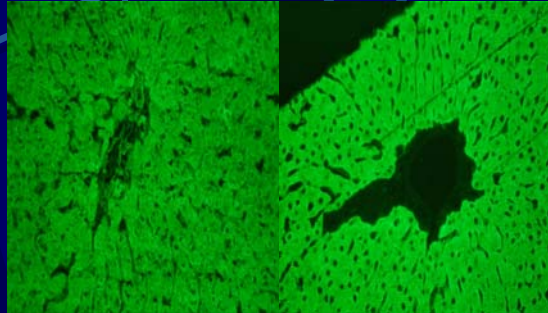


Left: Anti-M2 – note the bright background, the very granular appearance of the gastric mucosa and the positive signal from the connective tissue at the top of the field.

Right: Anti-GPC – only GPCs stained, prominent nuclear space and no staining of the connective tissue at the top of the field which contains a large band of smooth muscle. Also note that no other gastric cells are stained.

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Portal tract comparison



Left: anti-M2 – the portal tract is visible but many of its components give a positive fluorescence signal. The surrounding hepatocytes are typically granular and in this case the nuclear “holes” are not so prominent.

Right: anti-LKM-1 – no signal from the portal tract, completely black. The nuclear “holes” are distinct. The hepatocytes give a flat fluorescence signal with no granularity.

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LKM Antibody - 2006

Manufacturer	061	062	063	064	065
Alpha Dia	Negative 100%	Negative 100%	Positive 100%	Negative 100%	Negative 88%
Binding Site	Negative 100%	Negative 100%	Positive 98%	Negative 100%	Negative 97%
BioDiagnostics	Negative 100%	Negative 100%	Positive 95%	Negative 100%	Negative 100%
Bio-Rad/Kallest	Negative 100%	Negative 100%	Positive 94%	Negative 94%	Negative 100%
Biosystems	Negative 100%	Negative 100%	Positive 86%	Negative 100%	Negative 93%
Diasorin	Negative 100%	Negative 100%	Positive 95%	Negative 95%	Negative 94%
Euroimmun	Negative 100%	Negative 100%	Positive 94%	Negative 100%	Negative 93%
Immco	Negative 100%	Negative 100%	Positive 83%	Negative 95%	Negative 100%
Inova	Negative 100%	Negative 100%	Positive 92%	Negative 100%	Negative 86%

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Smooth Muscle Antibody - 2006

Manufacturer	061	062	063	064	065
Alpha Dia	Positive 87%	Positive 100%	Negative 100%	Negative 100%	Negative 100%
Binding Site	Positive 87%	Positive 90%	Negative 100%	Negative 100%	Negative 100%
BioDiagnostics	Positive 82%	Positive 100%	Negative 100%	Negative 100%	Negative 100%
Bio-Rad/Kallest	Positive 95%	Positive 96%	Negative 100%	Negative 96%	Negative 100%
Biosystems	Positive 85%	Positive 92%	Negative 100%	Negative 97%	Negative 97%
Diasorin	Positive 95%	Positive 95%	Negative 100%	Negative 100%	Negative 100%
Euroimmun	Positive 83%	Positive 91%	Negative 100%	Negative 100%	Negative 100%
Immco	Positive 90%	Positive 100%	Negative 100%	Negative 100%	Negative 100%
Inova	Positive 68%	Positive 92%	Negative 100%	Negative 83%	Negative 100%

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Gastric Parietal Cell Antibody - 2006

Manufacturer	061	062	063	064	065
Binding Site	Positive 98%	Negative 98%	Positive 100%	Positive 89%	Negative 100%
BioDiagnostics	Positive 86%	Negative 100%	Positive 100%	Positive 90%	Negative 90%
Bio-Rad/Kallest	Positive 100%	Negative 100%	Positive 100%	Positive 55%	Negative 100%
Biosystems	Positive 100%	Negative 96%	Positive 91%	Positive 88%	Negative 96%
Diasorin	Positive 100%	Negative 100%	Positive 87%	Positive 92%	Negative 100%
Euroimmun	Positive 92%	Negative 97%	Positive 100%	Positive 81%	Negative 100%
Immco	Positive 94%	Negative 100%	Positive 100%	Positive 81%	Negative 100%
Inova	Positive 83%	Negative 95%	Positive 100%	Positive 90%	Negative 100%

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Information about the programmes
can be found on website
www.immqas.org.uk

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