

## Immunology Age-Related Reference Ranges

### IgG (g/L)

| Gender | Age               | Low | High |
|--------|-------------------|-----|------|
| Both   | Less than 2 weeks | 5.0 | 17.0 |
| Both   | 2 - 6 weeks       | 3.9 | 13.0 |
| Both   | 6 - 12 weeks      | 2.1 | 7.7  |
| Both   | 3 - 6 months      | 2.4 | 8.8  |
| Both   | 6 - 9 months      | 3.0 | 9.0  |
| Both   | 9 - 12 months     | 3.0 | 10.9 |
| Both   | 1 - 2 years       | 3.0 | 13.8 |
| Both   | 2 - 3 years       | 3.7 | 15.8 |
| Both   | 3 - 6 years       | 4.9 | 16.1 |
| Both   | 6 - 9 years       | 5.4 | 16.1 |
| Both   | 9 - 12 years      | 5.4 | 16.1 |
| Both   | 12 - 15 years     | 5.4 | 16.1 |
| Both   | 15+ years         | 6.0 | 16.0 |

### IgA (g/L)

| Gender | Age               | Low  | High |
|--------|-------------------|------|------|
| Both   | Less than 2 weeks | 0.01 | 0.08 |
| Both   | 2 - 6 weeks       | 0.02 | 0.15 |
| Both   | 6 - 12 weeks      | 0.05 | 0.40 |
| Both   | 3 - 6 months      | 0.10 | 0.50 |
| Both   | 6 - 9 months      | 0.15 | 0.70 |
| Both   | 9 - 12 months     | 0.20 | 0.70 |
| Both   | 1 - 2 years       | 0.30 | 1.20 |
| Both   | 2 - 3 years       | 0.30 | 1.30 |
| Both   | 3 - 6 years       | 0.40 | 2.00 |
| Both   | 6 - 9 years       | 0.50 | 2.40 |
| Both   | 9 - 12 years      | 0.70 | 2.50 |
| Both   | 12 - 15 years     | 0.80 | 2.80 |
| Both   | 15 - 45 years     | 0.80 | 2.80 |
| Both   | 45+ years         | 0.80 | 4.00 |

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Q Pulse Reference N<sup>o</sup>: IMM0066  
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**IgM (g/L)**

| Gender | Age               | Low  | High |
|--------|-------------------|------|------|
| Both   | Less than 2 weeks | 0.01 | 0.62 |
| Both   | 2 - 6 weeks       | 0.01 | 0.82 |
| Both   | 6 - 12 weeks      | 0.01 | 1.12 |
| Both   | 3 - 6 months      | 0.05 | 1.42 |
| Both   | 6 - 9 months      | 0.25 | 2.02 |
| Both   | 9 - 12 months     | 0.45 | 2.52 |
| Both   | 1 - 2 years       | 0.35 | 2.72 |
| Both   | 2 - 3 years       | 0.35 | 2.62 |
| Both   | 3 - 6 years       | 0.35 | 2.42 |
| Both   | 6 - 9 years       | 0.35 | 2.22 |
| Both   | 9 - 12 years      | 0.35 | 2.22 |
| Both   | 12 - 15 years     | 0.35 | 2.32 |
| Both   | 15 - 45 years     | 0.35 | 2.32 |
| Both   | 45+ years         | 0.35 | 2.42 |

Source of Reference Ranges for Immunoglobulins PRU Handbook in Clinical Immunology 9th Edition 2007

**IgG subclasses:**

**IgG1 (g/L) TBS**

| Age           | Low  | High |
|---------------|------|------|
| 0-2 years     | 1.94 | 8.42 |
| 2-4 years     | 3.15 | 9.45 |
| 4-6 years     | 3.06 | 9.45 |
| 6-8 years     | 2.88 | 9.18 |
| 8 - 10 years  | 4.23 | 10.2 |
| 10 - 12 years | 4.23 | 10.6 |
| 12 - 14 years | 3.42 | 11.5 |
| 14-18 years   | 3.15 | 8.55 |
| Adult         | 3.82 | 9.29 |

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**IgG2 (g/L) TBS**

| Age           | Low  | High |
|---------------|------|------|
| 0-2 years     | 0.3  | 3    |
| 2-4 years     | 0.36 | 2.25 |
| 4-6 years     | 0.61 | 3.45 |
| 6-8 years     | 0.44 | 3.76 |
| 8 - 10 years  | 0.72 | 4.3  |
| 10 - 12 years | 0.76 | 3.55 |
| 12 - 14 years | 1    | 4.55 |
| 14-18 years   | 0.64 | 4.95 |
| Adult         | 2.4  | 7    |

**IgG3 (g/L) TBS**

| Age           | Low  | High |
|---------------|------|------|
| 0-2 years     | 0.18 | 0.85 |
| 2-4 years     | 0.17 | 0.68 |
| 4-6 years     | 0.10 | 1.2  |
| 6-8 years     | 0.16 | 0.85 |
| 8 - 10 years  | 0.13 | 0.85 |
| 10 - 12 years | 0.17 | 1.73 |
| 12 - 14 years | 0.28 | 1.25 |
| 14 - 18 years | 0.23 | 1.96 |
| ADULT         | 0.22 | 1.76 |

**IgG4 (g/L) TBS**

| Age           | Low  | High |
|---------------|------|------|
| 0-2 years     | 0.01 | 0.78 |
| 2-4 years     | 0.01 | 0.54 |
| 4-6 years     | 0.01 | 1.2  |
| 6-8 years     | 0.01 | 0.99 |
| 8 - 10 years  | 0.02 | 0.93 |
| 10 - 12 years | 0.02 | 1.15 |
| 12 - 14 years | 0.04 | 1.36 |
| 14-18 years   | 0.04 | 1.57 |
| >18           | 0.04 | 0.86 |

Source of Reference Ranges for Subclasses: The Binding Site (TBS)

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**IgE (ku/L)**

| Gender | Age                | Low | High |
|--------|--------------------|-----|------|
| Both   | Less than 3 months | 0   | 4    |
| Both   | 3 -12 months       | 0   | 13   |
| Both   | 1 - 5 years        | 1   | 48   |
| Both   | 5 - 10 years       | 1   | 85   |
| Both   | 10 - 15 years      | 1   | 155  |
| Both   | 15+ years          | 1   | 113  |

Source of Reference Ranges Total IgE: Zetterström O, Johansson SG. Allergy. 1981 Nov; 36(8):537-47.

**Allergen Specific IgE**

| GRADE | RANGE (ku/L) | INTENSITY         |
|-------|--------------|-------------------|
| 0     | <0.35        | NEGATIVE          |
| 1     | 0.35-0.70    | WEAK POSITIVE     |
| 2     | 0.70-3.50    | WEAK POSITIVE     |
| 3     | 3.50-17.50   | MODERATE POSITIVE |
| 4     | 17.50-50.00  | MODERATE POSITIVE |
| 5     | 50.00-100.00 | STRONG POSITIVE   |
| 6     | >100.00      | STRONG POSITIVE   |

Source of Interpretative Ranges for Specific IgE: PRU Handbook in Clinical Immunochemistry 9th Edition 2007

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**Lymphocyte Subsets**

| Age                | Lymphocytes           | CD3+ % | CD3+ Abs  | CD3+CD4+ % | CD3+CD4+ Abs | CD3+CD8+ % | CD3+CD8+ Abs | CD19+ % | CD19+ Abs | CD3-CD16/56+ % | CD3-CD16/56+ Abs |
|--------------------|-----------------------|--------|-----------|------------|--------------|------------|--------------|---------|-----------|----------------|------------------|
|                    | (x10 <sup>9</sup> /l) |        |           |            |              |            |              |         |           |                |                  |
| Birth              | 2.0-7.3               | 49-62  | 0.98-4.52 | 28-42      | 0.56-1.90    | 26-33      | 0.52-2.41    | 14-23   | 0.28-1.68 | 14-30          | 0.28-2.19        |
| 2 weeks            | 2.8-9.1               | 58-67  | 1.62-6.10 | 38-50      | 0.62-3.05    | 18-25      | 0.50-2.28    | 19-31   | 0.53-2.82 | 8-17           | 0.22-1.55        |
| 4 weeks            | 3.0-13.5              | 58-67  | 1.74-9.04 | 38-50      | 0.66-4.52    | 18-25      | 0.54-3.38    | 19-31   | 0.57-4.19 | 8-17           | 0.24-2.30        |
| 2-6 months         | 4.0-10.5              | 58-67  | 2.32-7.03 | 38-50      | 0.88-3.51    | 18-25      | 0.72-2.63    | 19-31   | 0.76-3.26 | 8-17           | 0.32-1.79        |
| 6 months to 1 year | 4.0-10.5              | 58-67  | 2.32-7.03 | 38-50      | 0.88-3.52    | 18-25      | 0.72-2.63    | 19-31   | 0.76-3.26 | 8-17           | 0.32-1.79        |
| 1-6 years          | 1.5-9.5               | 62-69  | 0.93-6.56 | 30-40      | 0.45-3.8     | 25-32      | 0.38-3.04    | 21-28   | 0.32-2.66 | 8-15           | 0.12-1.43        |
| 6-12 years         | 1.5-7.0               | 66-76  | 0.99-5.32 | 33-41      | 0.50-5.32    | 27-35      | 0.41-2.45    | 12-22   | 0.18-1.54 | 9-16           | 0.14-1.12        |
| 12-18 years        | 1.1-6.5               | 66-76  | 0.73-4.94 | 33-41      | 0.36-2.67    | 27-35      | 0.30-2.28    | 12-22   | 0.13-1.43 | 9-16           | 0.10-1.04        |
| 18-70 years        | 1.0-4.0               | 67-76  | 0.67-3.04 | 38-46      | 0.38-1.84    | 31-40      | 0.31-1.60    | 11-16   | 0.11-0.64 | 10-19          | 0.1-0.76         |

Abs counts expressed as cells x 10<sup>9</sup>/L

Source of Reference Ranges: Hannet I. et al, Immunology Today. 1992;13:215-218.  
Corrected for local lymphocyte count ranges