Table S4: Amino acid identity of non-cytoplasmic region TRAP, AMA1, and P48/45 within six *Plasmodium* species.

<table>
<thead>
<tr>
<th>Plasmodium species (Accession number)</th>
<th><em>P. malariae</em></th>
<th><em>P. falciparum</em></th>
<th><em>P. vivax</em></th>
<th><em>P. knowlesi</em></th>
<th><em>P. ovale wallikeri</em></th>
<th><em>P. ovale curtisi</em></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TRAP</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><em>P. malariae</em> (SCO93694.1)</td>
<td>100</td>
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<tr>
<td><em>P. falciparum</em> (XP_001350088.1)</td>
<td>36.44</td>
<td>100</td>
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<tr>
<td><em>P. vivax</em> (XP_001614147.1)</td>
<td>45.97</td>
<td>41.95</td>
<td>100</td>
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<tr>
<td><em>P. knowlesi</em> (XP_002259987.1)</td>
<td>44.61</td>
<td>40.74</td>
<td>67.52</td>
<td>100</td>
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<tr>
<td><em>P. ovale wallikeri</em> (SBT40671.1)</td>
<td>47.47</td>
<td>38.62</td>
<td>48.80</td>
<td>49.15</td>
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<tr>
<td><em>P. ovale curtisi</em> (SBS96280.1)</td>
<td>45.88</td>
<td>39.78</td>
<td>48.37</td>
<td>47.66</td>
<td>89.38</td>
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<td><strong>AMA1</strong></td>
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<td><em>P. malariae</em> (SCN12851.1)</td>
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<td><em>P. falciparum</em> (XP_001348015.1)</td>
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<td><em>P. vivax</em> (XP_001615447.1)</td>
<td>68.68</td>
<td>54.75</td>
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<tr>
<td><em>P. knowlesi</em> (XP_002259339.1)</td>
<td>69.26</td>
<td>56.16</td>
<td>84.88</td>
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<td><em>P. ovale wallikeri</em> (SBT35580.1)</td>
<td>71.40</td>
<td>54.02</td>
<td>72.67</td>
<td>74.89</td>
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<tr>
<td><em>P. ovale curtisi</em> (SBS91605.1)</td>
<td>70.97</td>
<td>54.32</td>
<td>72.26</td>
<td>74.03</td>
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<td><strong>P48/45</strong></td>
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<tr>
<td><em>P. malariae</em> (SBT79956.1)</td>
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<td><em>P. falciparum</em> (XP_001350181.1)</td>
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<td><em>P. vivax</em> (AFB76627.1)</td>
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<td>57.43</td>
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<td><em>P. knowlesi</em> (XP_002259885.1)</td>
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<td>55.92</td>
<td>83.62</td>
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<tr>
<td><em>P. ovale wallikeri</em> (SBT40052.1)</td>
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<td>59.15</td>
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<td>62.59</td>
<td>62.09</td>
<td>96.51</td>
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</table>