ESSENTIAL LIST
OF
LABORATORY EQUIPMENT
AND
SUPPLIES FOR HIV TESTING

REGIONAL PROGRAMME ON AIDS
WORLD HEALTH ORGANISATION
REGIONAL OFFICE FOR AFRICA
INTRODUCTION

The preparation of this list has been made necessary by the perceived need and at the request of member countries of the region for a general list of essential equipment, reagents, and supplies for HIV/AIDS laboratories. This list, therefore, is a general guideline to member states to assist them in establishing HIV/AIDS laboratories. The list is by no means exhaustive as the examples of equipment/reagents given are but a small portion of what is currently available. The mention of certain brand names and/or manufacturers is by no means an endorsement of these products by WHO but is here provided as examples to guide member countries.

The list is presented in two parts. The first part lists all the equipment, reagents, and supplies necessary to run an HIV laboratory and is divided into sections on VCT/PMCT, Surveillance, Diagnosis and Blood Screening, and Antiretroviral therapy treatment and monitoring. The second part gives a list and specifications for all the equipment, reagents, and supplies necessary to run an HIV, HBV, HCV, and Syphilis testing laboratories. This list does not cover requirements for research and university type of laboratories.

While every effort has been made to ensure the correctness of the information WHO can not guarantee that this information will not change. Member countries are, therefore, advised to confirm with the suppliers the correctness of the information before placing any orders.

It is further recommended that member countries will consider local situations and circumstances when identifying equipment and reagents for procurement. In particular, it is advisable to consider the following:

- Available resources (both internal and external)
- Local infrastructure including electricity and water supply
- Availability of adequately trained personnel
- Service back up for the equipment
- Instrument and software warranties and conditions

The average workload of secondary (district) level laboratories has been taken into account in selecting equipment models. Member countries are free to consider other models depending on their needs/requirements. Information on other models in the range of equipment listed can be obtained from WHO/AFRO or the manufacturers of the particular equipment.
ESSENTIAL LIST

VCT LABORATORIES

1. Disinfectant
2. Medical wipes
3. Blood lancets
4. Capillary tubes
5. Sharps container
6. Disposal bags
7. Reagents (simple/rapid HIV test kits)
8. Blotting paper for DBS SS 903 (Schuller & Schuller)
9. Zip lock bags with dessicant
10. Gloves

SENTINNEL SURVEILLANCE LABORATORIES

1. Disinfectant
2. Medical wipes (cotton wool and spirit)
3. 5 ml syringe
4. 21G needle
5. Vacutainers/blood collection tubes
6. Labels
7. Sharps container
8. Disposal bags
9. Reagents (simple/rapid HIV test kits)
10. Refrigerator
11. Deep freezer
12. Serum tubes 2 ml
13. Storage box
14. Gloves M

ELISA/WESTERN BLOT SYSTEM (DIAGNOSIS AND BLOOD TRANSFUSION)*

1. Elisa reader, washer and printer and accessories
2. Distiller or access to distilled/deionised water
3. Incubator/water bath
4. Centrifuge
5. Reagents (refer to WHO list)
6. Refrigerator (for storage)
7. Agitator, rocker, tray mixer
8. Aspiration device
9. Measuring cylinders
10. Graduated pipettes (plastic/glass)
11. Single channel micropipettes
12. Multichannel micropipettes
13. Disposable pipette tips
14. Dilution tubes/rack
15. Reagent troughs
List of Essential Laboratory Equipment

16. Stop solution (sulphuric acid/sodium hydroxide)
17. Disinfectant
18. Gloves
19. Pipette Aids
20. Absorbent paper
21. Medical wipes (cotton wool and spirit)
22. 5 ml syringes
23. 21G needle
24. Vacuutainers/blood collection tubes**
25. Labels
26. Timer

* Countries to follow National Guidelines
** You can use vacuutainers with needle in lieu of syringe and needle

ARV (TREATMENT AND MONITORING)

1. Reagents for HIV diagnosis (as per National Guidelines)
2. CD4/CD8 counters and reagents
3. PCR equipment and reagents (see PCR Laboratory)
4. P24 Antigen Elisa reagents
5. Spectrophotometer with reagents for LFT, Creatinine, Amylase
6. Coulter counter plus reagents
7. Centrifuge
8. Biological safety cabinet with UV light
9. Micropipettes
10. PCR tubes
11. Graduated pipettes
12. Disposable pipette tips
13. Disinfectant
14. Gloves
15. Pipette Aids
16. Absorbent paper
### List of Essential Laboratory Equipment

<table>
<thead>
<tr>
<th>ITEM DESCRIPTION</th>
<th>PACK SIZE</th>
<th>CATALOGUE NO.</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General supplies</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>A. Glassware</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beaker with graduation and spout, Low form</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. 100 ml</td>
<td>Pack of 10</td>
<td>BR 912 24</td>
<td>The packaging sizes given here are for purposes of costing. Countries are free to request for other packaging configurations from the suppliers depending on their requirements.</td>
</tr>
<tr>
<td>2. 250 ml</td>
<td>Pack of 10</td>
<td>BR 912 36</td>
<td></td>
</tr>
<tr>
<td>3. 600 ml</td>
<td>Pack of 10</td>
<td>BR 912 48</td>
<td></td>
</tr>
<tr>
<td>4. 1000 ml</td>
<td>Pack of 10</td>
<td>BR 912 54</td>
<td></td>
</tr>
<tr>
<td>5. 2000 ml</td>
<td>Pack of 10</td>
<td>BR 912 63</td>
<td></td>
</tr>
<tr>
<td>Erlenmeyer Flask, narrow neck, beaded rim with graduation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. 100 ml</td>
<td>Pack of 10</td>
<td>BR 927 24</td>
<td></td>
</tr>
<tr>
<td>7. 250 ml</td>
<td>Pack of 10</td>
<td>BR 927 36</td>
<td></td>
</tr>
<tr>
<td>8. 500 ml</td>
<td>Pack of 10</td>
<td>BR 927 44</td>
<td></td>
</tr>
<tr>
<td>9. 1000 ml</td>
<td>Pack of 10</td>
<td>BR 927 54</td>
<td></td>
</tr>
<tr>
<td>10. 2000 ml</td>
<td>Pack of 10</td>
<td>BR 927 63</td>
<td></td>
</tr>
<tr>
<td>Flat bottom flasks, narrow neck with beaded rim</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. 50 ml</td>
<td>Pack of 10</td>
<td>BR 917 17</td>
<td></td>
</tr>
<tr>
<td>12. 100 ml</td>
<td>Pack of 10</td>
<td>BR 917 24</td>
<td></td>
</tr>
<tr>
<td>13. 250 ml</td>
<td>Pack of 10</td>
<td>BR 917 36</td>
<td></td>
</tr>
<tr>
<td>14. 500 ml</td>
<td>Pack of 10</td>
<td>BR 917 44</td>
<td></td>
</tr>
<tr>
<td>15. 1000 ml</td>
<td>Pack of 10</td>
<td>BR 917 54</td>
<td></td>
</tr>
<tr>
<td>Graduated measuring cylinders, tall form with spout and hexagonal glass base</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. 5 ml</td>
<td>Pack of 2</td>
<td>BR 321 05</td>
<td></td>
</tr>
<tr>
<td>17. 10 ml</td>
<td>Pack of 2</td>
<td>BR 321 08</td>
<td></td>
</tr>
<tr>
<td>18. 50 ml</td>
<td>Pack of 2</td>
<td>BR 321 28</td>
<td></td>
</tr>
<tr>
<td>19. 100 ml</td>
<td>Pack of 2</td>
<td>BR 321 38</td>
<td></td>
</tr>
<tr>
<td>20. 500 ml</td>
<td>Pack of 2</td>
<td>BR 321 54</td>
<td></td>
</tr>
<tr>
<td>21. 1000 ml</td>
<td>Pack of 2</td>
<td>BR 321 62</td>
<td></td>
</tr>
<tr>
<td>Graduated serological glass pipettes, suitable for cotton plugs, calibrated to deliver</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. 1 ml</td>
<td>Pack of 12</td>
<td>BR 270 70</td>
<td></td>
</tr>
<tr>
<td>23. 2 ml</td>
<td>Pack of 12</td>
<td>BR 270 72</td>
<td></td>
</tr>
<tr>
<td>24. 5 ml</td>
<td>Pack of 12</td>
<td>BR 270 76</td>
<td></td>
</tr>
<tr>
<td>25. 10 ml</td>
<td>Pack of 12</td>
<td>BR 270 77</td>
<td></td>
</tr>
<tr>
<td>26. 20 ml</td>
<td>Pack of 6</td>
<td>BR 270 78</td>
<td></td>
</tr>
</tbody>
</table>
### List of Essential Laboratory Equipment

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>DESCRIPTION</th>
<th>PACK SIZE</th>
<th>CATALOGUE NO.</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Blood collection bottles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27.</td>
<td>McCartney bottles 14 ml</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28.</td>
<td>Universal bottles 30 ml</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29.</td>
<td>Microscope slides size 75x25mm</td>
<td>50x50 boxes</td>
<td>BR 4747 43</td>
<td></td>
</tr>
<tr>
<td>30.</td>
<td>Staining troughs, Coplin, soda lime glass for 10 slides 76x26 mm</td>
<td>Pack of 10</td>
<td>BR 4728 00</td>
<td></td>
</tr>
<tr>
<td>31.</td>
<td>Staining troughs Schiefferdecker soda lime glass for 10 slides 76x26 mm</td>
<td>Pack of 10</td>
<td>BR 4725 00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Centrifuge tubes, conical bottom, graduated 15x0.1 ml</td>
<td>Pack of 10</td>
<td>BR 7787 13</td>
<td></td>
</tr>
<tr>
<td>32.</td>
<td>15 ml</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33.</td>
<td>20 ml</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34.</td>
<td>50 ml</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35.</td>
<td>Conical bottom nongraduated beaded rim 15 ml</td>
<td>Pack of 100</td>
<td>BR 7780 13</td>
<td></td>
</tr>
<tr>
<td>36.</td>
<td>Centrifuge tube round bottom rimless 15 ml</td>
<td>Pack of 200</td>
<td>BR 7790 22</td>
<td></td>
</tr>
<tr>
<td>37.</td>
<td>Centrifuge tube round bottom with rim 15 ml</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>38.</td>
<td>Improved Neubauer counting chamber</td>
<td></td>
<td>BR 7178 06</td>
<td></td>
</tr>
<tr>
<td>39.</td>
<td>Haemocytometer cover slips</td>
<td>10x10 boxes</td>
<td>BR 7230 55</td>
<td></td>
</tr>
<tr>
<td>40.</td>
<td>Vacutainer tubes plain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>41.</td>
<td>Vacutainer tubes EDTA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Laboratory bottle, graduated, screw cap, polypropylene, autoclavable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>42.</td>
<td>50 ml thread GL 32</td>
<td>Pack of 10</td>
<td>BR 1225 28</td>
<td></td>
</tr>
<tr>
<td>43.</td>
<td>100 ml thread GL 45</td>
<td>Pack of 10</td>
<td>BR 1225 38</td>
<td></td>
</tr>
<tr>
<td>44.</td>
<td>250 ml thread GL 45</td>
<td>Pack of 10</td>
<td>BR 1225 48</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Spare parts for laboratory bottle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45.</td>
<td>Screw cap thread GL 32</td>
<td>Pack of 10</td>
<td>BR 1226 28</td>
<td></td>
</tr>
<tr>
<td>46.</td>
<td>Screw cap thread GL 45</td>
<td>Pack of 10</td>
<td>BR 1226 38</td>
<td></td>
</tr>
<tr>
<td>47.</td>
<td>Pouring ring thread GL 32</td>
<td>Pack of 10</td>
<td>BR 1226 62</td>
<td></td>
</tr>
<tr>
<td>48.</td>
<td>Pouring ring thread GL 45</td>
<td>Pack of 10</td>
<td>BR 1226 64</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pasteur pipettes, soda lime glass approximately 2 ml</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>49.</td>
<td>Length 145 mm Tip 45 mm</td>
<td>4x250 box</td>
<td>BR 7477 15</td>
<td></td>
</tr>
<tr>
<td>50.</td>
<td>Length 225 mm Tip 120 mm</td>
<td>4x250 box</td>
<td>BR 7477 20</td>
<td></td>
</tr>
</tbody>
</table>
### B: Protective and safety supplies

Glove, examination, latex, powdered, disposable, non-sterile

1. Size L (8 – 9)
2. Size M (7 – 8)
3. Size S (6 – 7)

4. Face mask cotton
5. Laboratory coats, polycotton
6. Plastic apron, disposable, Length 1200 mm
7. Heavy duty gloves, reusable, sizes, small, medium, large
8. Kleenex medical wipes, large
9. Kleenex, white, 2-ply towel roll
10. Absorbent gauze
11. Cotton wool
12. Biohazard disposal bags
13. Biohazard labels
14. Sharps container, disposable 6 L capacity
15. Pipette fillers, universal, 3 valves for pipettes up to 100 ml
16. Accu-jet® pipette controller with recharger 230V, 50 Hz fits pipettes from 0.1 to 100 ml

### C: Plastics

Aspirator bottle with stop cock

1. 10 litres
2. 25 litres
3. 50 litres
4. Spare stopcock fits all sizes

Measuring cylinders, graduated, polypropylene

5. 5 ml
6. 10 ml
7. 50 ml
8. 100 ml
9. 500 ml
10. 1000 ml
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<table>
<thead>
<tr>
<th>ITEM DESCRIPTION</th>
<th>PACK SIZE</th>
<th>CATALOGUE NO.</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wash bottles with interchangeable wash head, adjustable height delivery tube</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. 100 ml thread GL 18</td>
<td>Pack of 50</td>
<td>BR 1441 38</td>
<td></td>
</tr>
<tr>
<td>12. 250 ml thread GL 25</td>
<td>Pack of 50</td>
<td>BR 1441 48</td>
<td></td>
</tr>
<tr>
<td>13. 500 ml thread GL 25</td>
<td>Pack of 50</td>
<td>BR 1441 54</td>
<td></td>
</tr>
<tr>
<td>14. Wash head, thread GL 18</td>
<td>Pack of 50</td>
<td>BR 1292 20</td>
<td></td>
</tr>
<tr>
<td>15. Wash head, thread GL 25</td>
<td>Pack of 50</td>
<td>BR 1292 22</td>
<td></td>
</tr>
<tr>
<td>Pasteur pipettes, graduated, with integral bulbs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. 1 ml, length 105 mm</td>
<td>8x400 carton</td>
<td>BR 7477 75</td>
<td></td>
</tr>
<tr>
<td>17. 3x0.5 ml, length 151 mm</td>
<td>10x500 carton</td>
<td>BR 7477 60</td>
<td></td>
</tr>
<tr>
<td>18. Rubber cap for glass Pasteur pipettes</td>
<td>Pack of 100</td>
<td>BR 1247 00</td>
<td></td>
</tr>
<tr>
<td>19. Sarstedt tube rack, 3 rows with 6 apertures, autoclavable (121)</td>
<td>93.850.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. Sarstedt rack for microvials, 3 rows with 6 apertures, autoclavable</td>
<td>93.826</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pipette rinsing apparatus PE-HD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. For pipette length 460 mm capacity 13 litres</td>
<td>Pack of 1</td>
<td>BR 291 20</td>
<td></td>
</tr>
<tr>
<td>22. For pipette length 600 mm capacity 17 litres</td>
<td>Pack of 1</td>
<td>BR 291 25</td>
<td></td>
</tr>
<tr>
<td>Soaking jar PE-HD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23. For pipette length 460 mm capacity 10 litres</td>
<td>Pack of 1</td>
<td>BR 292 10</td>
<td></td>
</tr>
<tr>
<td>24. For pipette length 600 mm capacity 12.5 litres</td>
<td>Pack of 1</td>
<td>BR 292 15</td>
<td></td>
</tr>
<tr>
<td>25. Pipette jar, for pipette storage, suitable for pipette up to 400 mm long</td>
<td>Pack of 1</td>
<td>BR 288 00</td>
<td></td>
</tr>
</tbody>
</table>

**D: Miscellaneous**

1. Transport box, Electrolux, polystyrene, dimensions 210x250x150 mm, capacity 0.6 litres | MT 2      |
2. Transport box, Electrolux, polystyrene, dimensions 500x710x550 mm, capacity 20.7 litres | MT 25E    |
3. Cryobox 130x130x50 mm | Case of 48 | 369639 Nunc |
4. Markers, fine point |           |           |
List of Essential Laboratory Equipment

<table>
<thead>
<tr>
<th>ITEM DESCRIPTION</th>
<th>PACK SIZE</th>
<th>CATALOGUE NO.</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Pipette cans</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Timer/clock, interval 60x1 min.</td>
<td></td>
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<tr>
<td>7. Stopwatch, 0-60 min.</td>
<td></td>
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<tr>
<td>8. Cool boxes ( isotherm )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Ice packs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Thermometer Celsius</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Blotting paper for DBS SS90 ( Schuller &amp; Schuller )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Blood lancets, sterile, stainless steel, single use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Sample vial for coulter counter</td>
<td>4x250 bags</td>
<td>BR 7220 55</td>
<td></td>
</tr>
<tr>
<td>14. Slide box ( 120x96x35 mm ) with lid for 25 slides size 76x26 mm</td>
<td>Pack of 1</td>
<td>BR 4758 00</td>
<td></td>
</tr>
<tr>
<td>15. Reagent troughs ( reservoirs )</td>
<td></td>
<td>BR 7034 59</td>
<td></td>
</tr>
<tr>
<td>16. Specimen mailing box, comprising outer cardboard case, polyethylene foam preformed inner, 5 clear polystyrene containers with absorbent packing to accommodate sealed specimen vials with instructions and labels</td>
<td>Case of 20</td>
<td>STS</td>
<td></td>
</tr>
</tbody>
</table>

E: Equipment + Accessories

EI – General equipment

1. Distillation unit, glass, double distillation
   ( Aquatron A4S )
   WL 100-10 STS

Accessories for aquatron A4S

2. Reservoir assembly WR20
   WL 120-10
3. Reservoir stand WS20
   WL 130-10
4. Water feed WCK
   WL 140-10
5. Heater W48H
   WL 114-12
6. Boiler WB4
   WL 114-30
7. Bacterial filter WR20/1 for reservoir
   WL 124-08
8. Portable autoclave, express. Aluminium chamber, capacity 15 litres, adjustable safety valve and pressure gauge, air release valve and drain siphon. Internal diameter 285 mm, depth 173 mm, takes one large sterilising drum, pressure setting for 67 bar ( 116 cc ) to 1.04 bar ( 121 cc ). Resetable thermal cutout; 1.85 kw 240V/50Hz
   ST 19 STS

Accessories for ST 19 autoclave

9. Sterilising drum, large 240x240 mm
   02 STS
### List of Essential Laboratory Equipment

<table>
<thead>
<tr>
<th>ITEM DESCRIPTION</th>
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<th>CATALOGUE NO.</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. Rim gasket</td>
<td></td>
<td>17 STS</td>
<td></td>
</tr>
<tr>
<td>11. Heaters, 220/240V, 50Hz</td>
<td></td>
<td>19 STS</td>
<td></td>
</tr>
<tr>
<td>12. Safety valve</td>
<td></td>
<td>01-A STS</td>
<td></td>
</tr>
<tr>
<td>13. Labwater R050 system comprising pre-filter unit, self contained reverse osmosis/deioniser unit with 40 litre reservoir and automatic level control. Output 50 litres/day at 25 degree C, 220/240V, 50Hz</td>
<td>L991025 STS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accessories for R050</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Feed pump unit to operate the system where mains pressure is low, or from a static header tank. Unit provides water at a constant input pressure, 220/240V, 50Hz</td>
<td>L991034 STS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Universal plumbing kit, comprising a selection of copper and iron pipe fittings, valves, clips, 10 mm plastic hose and thread sealing compound</td>
<td>STS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Pre-filter cartridges 10um Hytrep</td>
<td></td>
<td>L991056 STS</td>
<td></td>
</tr>
<tr>
<td>17. High performance, HP700 deioniser/carbon cartridge</td>
<td></td>
<td>L991024 STS</td>
<td></td>
</tr>
<tr>
<td>18. Incubator, Memmert, capacity 30 litres</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. Hot Air oven, Memmert, capacity 60 litres</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. Water bath Memmert W-350, 12 litres, precision thermostat, 25-100 degree C</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>21. Centrifuge, Denley benchtop, model BS400, with timer, brake, lid lock and imbalance detector, maximum speed 6000 rpm, analogue speed indicator, 220/240V, 50Hz</td>
<td>BS400 STS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accessories for BS400 centrifuge</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. four-place swing out rotor, maximum speed 4400 rpm</td>
<td></td>
<td>B400/3 STS</td>
<td></td>
</tr>
<tr>
<td>23. sealed buckets</td>
<td></td>
<td>B400/16 STS</td>
<td></td>
</tr>
<tr>
<td>24. adaptor for 4x15 ml tubes</td>
<td></td>
<td>B400/32 STS</td>
<td></td>
</tr>
<tr>
<td>25. adaptor for 3x capped 10 ml blood tubes ( will also take 15 ml pyrex tubes)</td>
<td></td>
<td>B400/33 STS</td>
<td></td>
</tr>
<tr>
<td>26. adaptor for universal containers</td>
<td></td>
<td>B400/31 STS</td>
<td></td>
</tr>
<tr>
<td>27. cushions for glass universal containers</td>
<td></td>
<td>B400/5B STS</td>
<td></td>
</tr>
<tr>
<td>28. cushions for plastic universal containers</td>
<td></td>
<td>B400/5C STS</td>
<td></td>
</tr>
<tr>
<td>29. brushes for motor</td>
<td></td>
<td>776/003 STS</td>
<td></td>
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</table>
### List of Essential Laboratory Equipment

<table>
<thead>
<tr>
<th>ITEM DESCRIPTION</th>
<th>PACK SIZE</th>
<th>CATALOGUE NO.</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>30. Mixer, orbital, Rotatest R100 with carrying plate for 4 microtitre plates, suitable for VDRL and serological tests</td>
<td></td>
<td>R100B STS</td>
<td></td>
</tr>
<tr>
<td>31. Mixer, suspension, Luckham, rotating on central axis with variable angle of tilt, 220/240V, 50Hz</td>
<td></td>
<td>802B STS</td>
<td></td>
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<tr>
<td>32. Refrigerator, 240 litres, including freezer, 220V/50Hz</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>33. Chest freezer, -30 deg. C, 220V/50Hz</td>
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<td></td>
</tr>
<tr>
<td><strong>E2 Elisa equipment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34. Multiskan Ascent, 96 plate reader, Labsystems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35. Wellwash 384, plate washer, Labsystems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finnpipette, digital, single channel, adjustable, Labsystems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36. Finnpipette 0.5-10 ul</td>
<td>4500 020</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37. Finnpipette 5-40 ul</td>
<td>4500 030</td>
<td></td>
<td></td>
</tr>
<tr>
<td>38. Finnpipette 20-200 ul</td>
<td>4500 090</td>
<td></td>
<td></td>
</tr>
<tr>
<td>39. Finnpipette 100-1000 ul</td>
<td>4500 120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finnpipette, digital, multichannel, adjustable, Labsystems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40. Finnpipette, 8 channel 5-50 ul</td>
<td>4510 020</td>
<td></td>
<td></td>
</tr>
<tr>
<td>41. Finnpipette, 8 channel, 50-300 ul</td>
<td>4510 030</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>E3 CD4/CD8 Count equipment</strong></td>
<td></td>
<td></td>
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<tr>
<td>41. FACScount</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>42. FACScan Multiset</td>
<td></td>
<td></td>
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<tr>
<td>43. FastImmune T Lymphocyte value bundle No. 1</td>
<td>50 tests</td>
<td>BD 340407</td>
<td></td>
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<tr>
<td>44. FastImmune T Lymphocyte value bundle No. 2</td>
<td>50 tests</td>
<td>BD 340408</td>
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### List of Essential Laboratory Equipment

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<tbody>
<tr>
<td>45. FastImmune CD4/CD69/CD3, SK7, SK3, L78, perCP, FITC, PE</td>
<td>50 tests</td>
<td>BD 340365</td>
<td></td>
</tr>
<tr>
<td>46. FastImmune CD8/CD69/CD3, SK7, SK1, L78, perCP, FITC, PE</td>
<td>50 tests</td>
<td>BD 340367</td>
<td></td>
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<tr>
<td><strong>E4 PCR Equipment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45. Bench top centrifuge 5417C without rotor</td>
<td></td>
<td>5417 000.315</td>
<td></td>
</tr>
<tr>
<td>46. Fixed angle rotor 24x1.5/2 ml including aluminium lid, aerosol tight, for 5417C</td>
<td></td>
<td>FA-45-24-11</td>
<td></td>
</tr>
<tr>
<td>Adaptor for fixed angle rotors for PCR and reaction tubes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>47. 0.2 ml</td>
<td>Set of 6</td>
<td>5425 715.005</td>
<td></td>
</tr>
<tr>
<td>48. 0.4 ml</td>
<td>Set of 6</td>
<td>5425 717.008</td>
<td></td>
</tr>
<tr>
<td>49. 0.5-0.6 ml</td>
<td>Set of 6</td>
<td>5425 716.001</td>
<td></td>
</tr>
<tr>
<td>50. Mastercycler® Gradient 230V/50Hz with heated lid and 1 personal card</td>
<td></td>
<td>5331 000.010</td>
<td></td>
</tr>
<tr>
<td>51. Mastercycler® 230V/50Hz with heated lid and 1 personal card</td>
<td></td>
<td>5333 000.018</td>
<td></td>
</tr>
<tr>
<td>52. Mastercycler® personal 230V/50Hz with heated lid and 1 personal card</td>
<td></td>
<td>5332 000.014</td>
<td></td>
</tr>
<tr>
<td>53. Biological safety cabinet class IIA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>54. Eppendorf micropipette Biomaster® 4830 adjustable volume 1-20ul with 1 box of 96 tips</td>
<td>5x96 tips/box</td>
<td>4830 000.017</td>
<td></td>
</tr>
<tr>
<td>55. Mastertips for Biomaster 4830</td>
<td></td>
<td>0030 001.320</td>
<td></td>
</tr>
<tr>
<td>56. Eppendorf Biophotometer</td>
<td></td>
<td>6131 000.012</td>
<td></td>
</tr>
<tr>
<td>57. Thermal printer DPU 414 Serial printer including power supply 230V unit and printer cable</td>
<td></td>
<td>6131 011.006</td>
<td></td>
</tr>
<tr>
<td>58. Secondary UV-VIS filter, test filter for checking photometric precision and wavelength accuracy in Biophotometer</td>
<td></td>
<td>6131 928.007</td>
<td></td>
</tr>
</tbody>
</table>
### List of Essential Laboratory Equipment

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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>59.</td>
<td>Taq DNA Polymerase 100 U</td>
<td></td>
<td>0032 002.200</td>
<td></td>
</tr>
<tr>
<td>60.</td>
<td>10X Taq buffer with 15mM Magnesium</td>
<td>1.8 ml</td>
<td>0032 002.730</td>
<td></td>
</tr>
<tr>
<td>61.</td>
<td>10X Taq buffer Magnesium free</td>
<td>1.8 ml</td>
<td>0032 002.854</td>
<td></td>
</tr>
<tr>
<td>62.</td>
<td>Taq storage buffer</td>
<td>1.7 ml</td>
<td>0032 002.960</td>
<td></td>
</tr>
<tr>
<td>63.</td>
<td>Magnesium solution 25 mM</td>
<td>1.5 ml</td>
<td>0032 002.749</td>
<td></td>
</tr>
<tr>
<td>64.</td>
<td>Eppendorf Mastermix (2.5x) 125 units for 100 reactions, ready to use mix of Taq DNA Polymerase, nucleotides, standard Magnesium concentration, and reaction buffer</td>
<td></td>
<td>0032 002.250</td>
<td>Special package sizes available upon request</td>
</tr>
<tr>
<td>65.</td>
<td>dNTP Set (100mM)</td>
<td>4x100 ul</td>
<td>0032 003.206</td>
<td></td>
</tr>
<tr>
<td>66.</td>
<td>dNTP Mix (200 ul) a ready to use mix of dATP, dGTP, dCTP, and dTTP at a concentration of 10 mm each. The dNTPs are in the form of sodium salts</td>
<td></td>
<td>0032 003.001</td>
<td></td>
</tr>
<tr>
<td>67.</td>
<td>TAE 50X Buffer</td>
<td>4 litre</td>
<td>0032 006.558</td>
<td></td>
</tr>
<tr>
<td>68.</td>
<td>RNA Gel loading buffer (no EtBr)</td>
<td>5x250 ul</td>
<td>0032 006.906</td>
<td></td>
</tr>
<tr>
<td>69.</td>
<td>DNA Gel loading Buffer, 10x</td>
<td>10x250 ul</td>
<td>0032 006.850</td>
<td></td>
</tr>
<tr>
<td>70.</td>
<td>GELoader tips</td>
<td></td>
<td>0030 001.222</td>
<td></td>
</tr>
<tr>
<td>71.</td>
<td>UVette® Eppendorf disposal single sealed cuvette for biophotometer</td>
<td>set of 200</td>
<td>0030 106.300</td>
<td></td>
</tr>
<tr>
<td>72.</td>
<td>0.2 ml PCR tubes, colourless, thin walled with hinged lid</td>
<td>1000 pcs</td>
<td>0030 124.332</td>
<td></td>
</tr>
<tr>
<td>73.</td>
<td>0.5 ml PCR tubes, colourless, thin walled with hinged lid</td>
<td>500 pcs</td>
<td>0030 124.502</td>
<td></td>
</tr>
<tr>
<td>74.</td>
<td>Work tray for 0.2 ml PCR tubes, for 96 tubes</td>
<td>set of 10</td>
<td>0030 124.235</td>
<td></td>
</tr>
<tr>
<td>75.</td>
<td>Eppendorf twin.tec PCR Plate 96, skirted, colourless</td>
<td>25 pcs</td>
<td>0030 128.648</td>
<td>Finnitip Filter, supplied in vacuum sealed sterilised tip racks.</td>
</tr>
<tr>
<td>ITEM DESCRIPTION</td>
<td>PACK SIZE</td>
<td>CATALOGUE NO.</td>
<td>REMARKS</td>
<td></td>
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<tr>
<td>------------------</td>
<td>-----------</td>
<td>---------------</td>
<td>---------</td>
<td></td>
</tr>
<tr>
<td>76. 0.2 – 10 ul</td>
<td>10x96/rack</td>
<td>94052 000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>77. 0.5 – 200 ul</td>
<td>10x96/rack</td>
<td>94052 300</td>
<td></td>
<td></td>
</tr>
<tr>
<td>78. 100 – 1000 ul</td>
<td>10x108/rack</td>
<td>94052 400</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**E5: Haematology**

79. Coulter® Ac.Tm 10
80. Coulter® MAXM

81. Ac Trone Cell Control 2x3.3 ml 7547112
82. 4C PLUS Cell Control 6x3.3 ml 7547025
83. AcT Tainer 4 L Pack 8547111
84. Isoton® III
85. Lyse S III
86. Coulter® PAK
87. Coulter® 5C Cell Control
88. Microscope, binocular, electric, Leitz
89. May-Grunwald solution 1 Litre
90. Giemsa stain solution 500 ml
91. Buffer phosphate, pH 6.8 1 Litre
92. Immersion oil, Refractive Index 1.516
93. Sodium chloride, 0.9 % 500 ml
94. Ethanol 100 %
95. Staining rack
96. Test tube rack
97. Hand Tally Counter 0-99

**E6: Chemistry**

98. Spectrophotometer, Vitek Systems, UV-VIS Junior
99. UV-VIS Junior Printer

**F: Reagents**

**F1: HIV – ELISAs**

<table>
<thead>
<tr>
<th>Test Kit</th>
<th>No. of tests/kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ENZYGHOST ANTI-HIV ½ plus, (Dade Behring AG)</td>
<td>192, 960</td>
</tr>
<tr>
<td>2. DETECT HIV I+II, (Biochem)</td>
<td>96, 192</td>
</tr>
<tr>
<td>3. HIV-TETRA, HIV 1+2, (Biotest)</td>
<td>480</td>
</tr>
<tr>
<td>4. RECOMBIGIN HIV-1/2 EIA, (Trinity Biotech plc)</td>
<td>192</td>
</tr>
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</table>
## List of Essential Laboratory Equipment

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
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<th>CATALOGUE NO.</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.</td>
<td>INNOTEST HIV-1/HIV-2 Ab s.p. (Innogenetics)</td>
<td>96, 480</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>HIV EIA (Labsystems)</td>
<td>96, 960</td>
<td></td>
<td></td>
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<tr>
<td>7.</td>
<td>ICE HIV 1,0,2, EIA (Murex/Abbott)</td>
<td>96, 480</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>VIRONOSTIKA HIV UNI-FORM II plus 0 (Organon Teknika)</td>
<td>192, 576</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>GENSCREEN HIV 1+2 (Biorad)</td>
<td>96, 480</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>UBI HIV ½ EIA (United Biomedical)</td>
<td>192, 960</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>ABBOTT 3RD GENERATION HIV-1/HIV-2 EIA (Abbott)</td>
<td>100, 1000</td>
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</table>

**F2: HIV – Simple and/or Rapid**

<table>
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<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.</td>
<td>CAPILLUS HIV-1/HIV-2 (Trinity Biotech plc)</td>
<td>20, 100</td>
<td></td>
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<tr>
<td>13.</td>
<td>SERODIA HIV-1/2 (Fujirebio)</td>
<td>220</td>
<td></td>
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<tr>
<td>14.</td>
<td>IMMUNOCOMB II BISPOT HIV – 1&amp; 2 (Organics Ltd.)</td>
<td>36</td>
<td></td>
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</tr>
<tr>
<td>15.</td>
<td>DIPSTICK HIV 1+2 (Pacific Biotech Co. Ltd.)</td>
<td>48, 96, 192</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>DETERMINE HIV – ½ (Abbott)</td>
<td>100</td>
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<td></td>
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<tr>
<td>17.</td>
<td>HIV 1 &amp; 2 DOUBLECHECK (Organics Ltd.)</td>
<td>40</td>
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<tr>
<td>18.</td>
<td>HIV TRIDOT (Mitra &amp; Co. India)</td>
<td>10, 20, 50</td>
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<td></td>
</tr>
<tr>
<td>19.</td>
<td>SERO STRIP HIV – ½ (Saliva Diagnostic Systems)</td>
<td>30</td>
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</table>

To be used only as second or third line test in the WHO testing strategies.

**F3: Supplemental Assays**

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</thead>
<tbody>
<tr>
<td>20.</td>
<td>HIV BLOT 2.2 (Genelabs Diagnostics)</td>
<td>20</td>
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<tr>
<td>21.</td>
<td>INNO-LIA HIV-1/HIV-2 Ab (Innogenetics)</td>
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</table>

**F4: HCV – ELISA**

<table>
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<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.</td>
<td>3RD GENERATION HCV MICROLISA (Mitra &amp; Co. Ltd. India)</td>
<td></td>
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<tr>
<td>23.</td>
<td>INNOTEST HCV Ab IV (Innogenetics)</td>
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</table>
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<th>REMARKS</th>
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<tbody>
<tr>
<td>24.</td>
<td>ORTHO HCV 3.0 ENHANCED SAVe ( Ortho-Clinical Diagnostics ) ( Used as reference test )</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>25.</td>
<td>MONOLISA ANTI-HCV PLUS ( Biorad ) ( Used as reference test )</td>
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</table>

**F5: Simple and/or Rapid HCV tests**

<table>
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<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>26.</td>
<td>SERODIA HCV ( Fujirebio )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27.</td>
<td>HCV SP.T ( Genelabs Diagnostics Pte Ltd. )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28.</td>
<td>SEROCARD HCV ( Trinity Biotech plc )</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>29.</td>
<td>GENEDIA HCV RAPID ( Green Cross Life Science Corp)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30.</td>
<td>4th generation HCV TRI-DOT ( J. Mitra &amp; Co. Ltd. )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31.</td>
<td>CHIRON* RIBA* HCV 3.0 ( Chiron ) ( Used as reference test )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32.</td>
<td>INNO-LIA HCV Ab III Update ( Innogenetics ) ( Used as reference test )</td>
<td></td>
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</table>

**F6: HBsAg Tests**

<table>
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<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>33.</td>
<td>ENZYGNOST HBsAg MONOCLONAL ( Dade Behring )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34.</td>
<td>MICROTRAK HBsAg EIA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35.</td>
<td>HEPANOSTIKA HBsAg UNIFORM ( Organon Teknika )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36.</td>
<td>HEPANOSTIKA CONFIRMATORY HBsAg ( Organon Teknika )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37.</td>
<td>MONOLISA HBsAg ( Pastuer Diagnostics )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>38.</td>
<td>HEPATEST-3 HBsAg SCREENING KIT</td>
<td></td>
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</tr>
<tr>
<td>39.</td>
<td>HEPATEST-3 HBsAg CONFIRMATORY KIT</td>
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</tbody>
</table>

**F7: Syphilis**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>PACK SIZE</th>
<th>CATALOGUE NO.</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>40.</td>
<td>RPR CARD TEST KIT ( Becton &amp; Dickinson )</td>
<td>100, 150, 500</td>
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<td></td>
</tr>
<tr>
<td>41.</td>
<td>RPR SLIDE TEST AGGLUTINATION ( Bio-Merieux )</td>
<td>100, 500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>42.</td>
<td>RPR ( Nosticon ) ( Organon )</td>
<td>500</td>
<td></td>
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</tr>
</tbody>
</table>
List of Essential Laboratory Equipment

<table>
<thead>
<tr>
<th>ITEM DESCRIPTION</th>
<th>PACK SIZE</th>
<th>CATALOGUE NO.</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>43. TPHA TEST KIT (Bio-Merieux)</td>
<td>200</td>
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<tr>
<td>44. TPHA TEST KIT – FD 101 (Fujirebio)</td>
<td>100</td>
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<tr>
<td>45. TPHA TEST KIT (Nosticon) (Organon)</td>
<td>200</td>
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<tr>
<td><strong>F8: Sera</strong></td>
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</tr>
<tr>
<td>46. FOETAL CALF SERUM (Biological Diagnostic)</td>
<td>100 ml, 500 ml</td>
<td>35-6-000-7</td>
<td></td>
</tr>
<tr>
<td>47. FOETAL CALF SERUM (Life Technologies, CH)</td>
<td>100 ml, 300 ml</td>
<td>011-06290M</td>
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</tr>
<tr>
<td><strong>F9: Other</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>48. Sodium Hypochlorite, granules 70% chlorine</td>
<td>5kg/can</td>
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</tr>
<tr>
<td>49. Phosphate Buffered Saline (PBS)</td>
<td>12x1 L Packs</td>
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</tr>
<tr>
<td>50. Sulphuric Acid 96%</td>
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</tr>
<tr>
<td>51. Sodium Hydroxide</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

LIST OF CATALOGUES USED

1. BR – BRAND 600 General Catalogue, Laboratory Equipment
2. BD – BD Biosciences
3. Labsystems, for Elisa Equipment
4. EPPENDORF (Products and applications for the laboratory 2002) for PCR
5. STS – GPA Supplies and Equipment List, Basic Standard Items, March, 1993
6. BioMerieux for UV-VIS Junior
7. Electrolux Medical Systems for transport boxes
8. Sarstedt for tube racks