

# MalariaGen Guidance: Dried Blood Spot (DBS) Collection (2 DBS cards)

Guidance



**Version 1.2**  
**January 2021**

**About this document**

This guidance was prepared by the MalariaGEN Resource Centre members based at the Wellcome Trust Sanger Institute, UK, to assist our partners collecting dried blood spots from malaria patients, for the purposes of sequencing Plasmodium parasites.

**For more information, contact:**

[samples@malariagen.net](mailto:samples@malariagen.net)

Malaria Genomic Epidemiology Network (MalariaGEN)

<https://www.malariagen.net>

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## 1. Preparing a blood spot collection kit

Blood spot collection kits can be prepared in bulk, prior to collecting samples in the field.

Please contact us (see contact section above) for the number of kits you require and we will supply the necessary components. We will provide these for you to make up the individual kits yourselves.

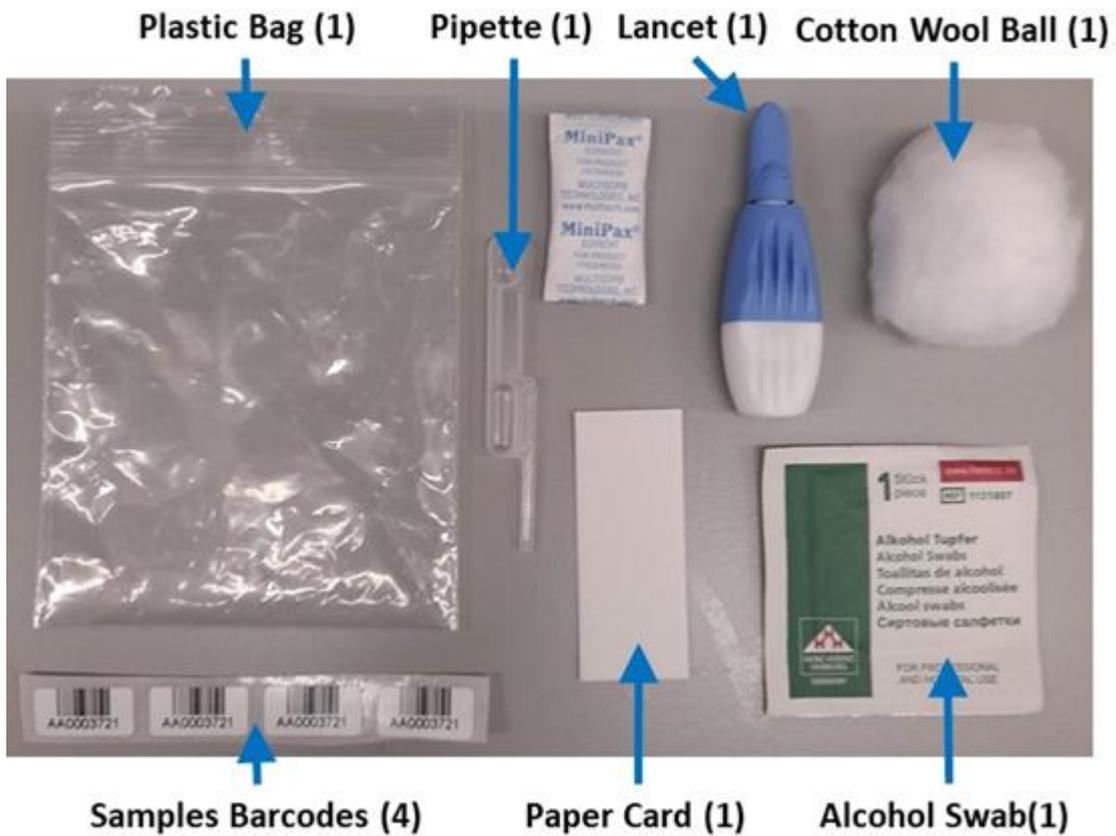
Each individual 2-DBS kit comprises - item (number);

- Alcohol swab (1)
- Lancet (1)
- Cotton wool ball (1)
- Whatman 3M card (1) –for 2 DBS on the one card
- 40uL pipette (2)
- Sample barcodes (strip of 4): (number may vary but will always be sufficient)
- Desiccant sachet (1)
- Zip-lock bag (1) – to place the kit contents in and for storing the DBS when made

We are no longer automatically providing trays for each kit. We will however send trays if you request them, or we can send you an alternative for preparing a clean work area that can be sterilised and reused (please email at the contact details above).

We would value any feedback you have on the kits, particularly how you use the trays, and whether they are useful (see contact details above).

### DBS kit contents per individual



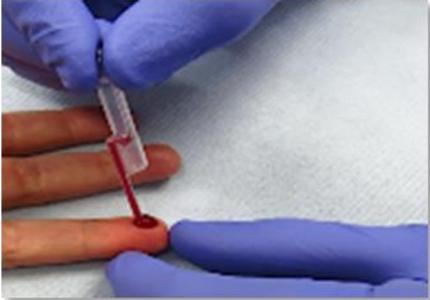
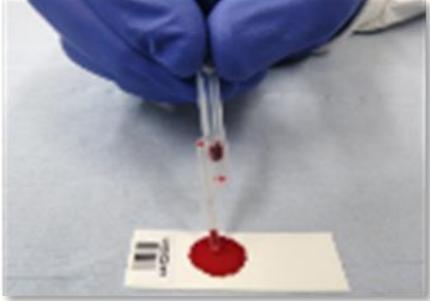
NB: The number of barcodes may vary but will always be sufficient.

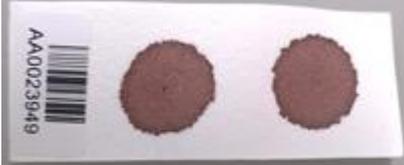
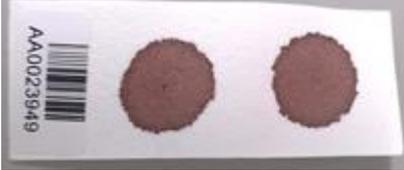


Place all the items for 1 kit into the sealable bag provided ready to take to the field.

A tray is optional here – we are no longer automatically providing them to put into each kit. However we suggest having a stack of trays, or other, to accompany personnel to field sites to use as 'clean-working space'

## 2. Guide to Collecting blood spots

<p>Carefully remove the kit contents from the bag and place it on a clean surface (a tray or other). <b>Save the bag for later in the protocol.</b></p>		
1.	<p>Stick one barcode on your internal sample information sheet.</p>	
2.	<p>Stick one barcode to the paper card as shown.  (If you wish to collect further DBS cards for your own purposes you can use the surplus barcodes – step 9 for example).</p>	
3.	<p>Fill out the required sample details on your internal information sheet.</p>	
4.	<p>Sterilise the patient's fingertip using the alcohol swab.</p>	
5.	<p>Prick the fingertip using the lancet</p>	
6.	<p>Carefully collect the blood drops into the pipette, avoiding air bubbles as much as possible (see troubleshooting tips).</p>	
7.	<p>Squeeze the pipette bulb and slowly release the blood drops onto the paper to make a spot. Make sure that each drop spreads well before the next one leaves the pipette tip.</p>	

8.	The card provided is for TWO blood spots arranged as shown.	
9.	<p>If you are using a microscopy slide for <b>your own research</b>, you can (if you would like to) stick a third barcode on the microscopy slide. Smear thick and thin blood films on a microscopy slide to estimate the patient's parasitaemia. If you are not collecting microscopy slides, please disregard the excess barcodes.</p> <p><b>PLEASE DO NOT SEND MICROSCOPY SLIDES.</b></p>	
10.	When you have finished collecting blood, press the cotton ball on the prick wound to arrest the bleeding.	
11.	Dry the blood spots (and the microscopy slide if applicable).	
12.	Place the dried blood spots and desiccant sachet into the provided <b>Minigrip re-sealable bag</b> .	
13.	When you have collected all your DBS please could you organise them into numerical order please.	
14.	<p>It would be really helpful if you could group the DBS into lots of 94 samples in the first instance and then for each of these divide into 11 groups of 8 DBS and 1 group of 6 DBS. Use a rubber band or whatever is appropriate to group each set of bags. We can provide rubber bands if necessary. Please let us know in the usual way.</p> <p>Then for each set of 94 DBS, place the bundles of 8 and 6 DBS into a single larger bag and label that bag with some identifier.</p>	

12 Make sure you fill in the electronic MalariaGen sample manifest. If you do not have this or are unsure please contact [support@malariagen.net](mailto:support@malariagen.net) with your MalariaGEN Study ID.

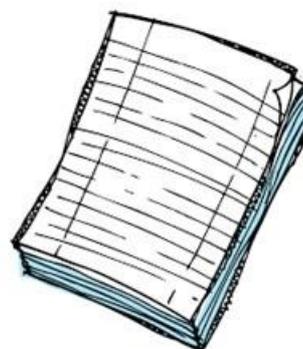
- Please send completed MalariaGEN sample manifests to [support@malariagen.net](mailto:support@malariagen.net).
- Print out a copy of the completed MalariaGEN sample manifest and include this with your sample shipment.

### Make sure you submit the following for each patient



Sealed bag from each person containing **2 dried blood spots** on a single card, and 1 desiccant sachet each

+



Paper copy of the sample manifest

Ship this to:  
**MalariaGEN Team 112,**  
**c/o Eleanor Drury**  
**Sulston Building**  
**Wellcome Sanger Institute**  
**Hinxton,**  
**CB10 1SA,**  
**United Kingdom**

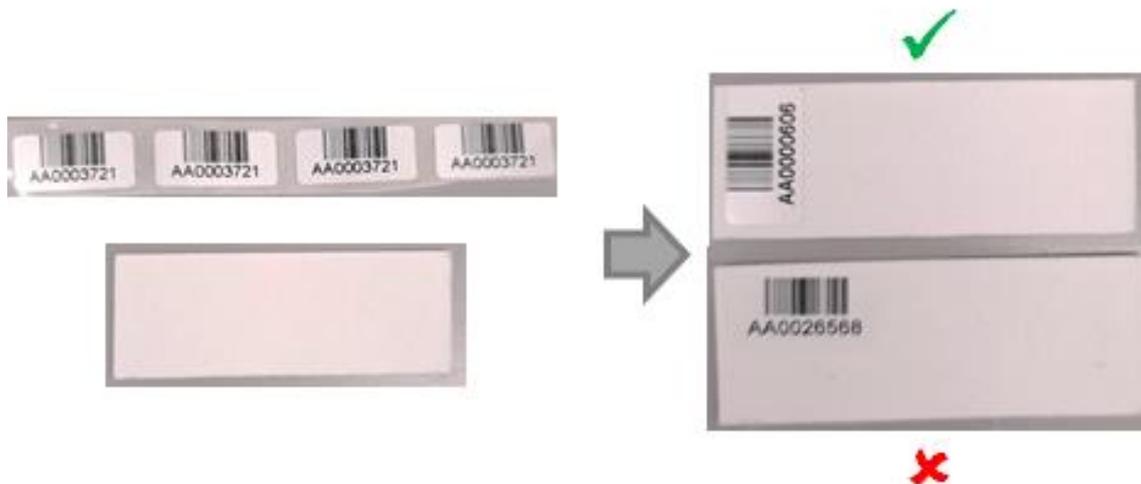
Email: [samples@malariagen.net](mailto:samples@malariagen.net)

Please email any postal/courier tracking information as soon as possible, thank you.

### 3. Troubleshooting tips

#### Place barcode stickers along the shorter edge

Barcode stickers should be placed across the shorter, left edge of the paper cards and the microscopy slides.

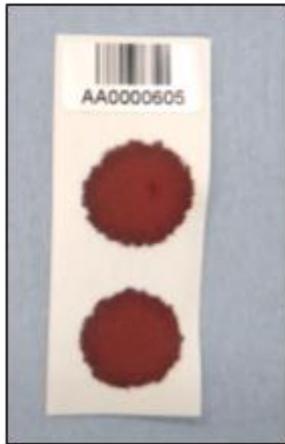


#### Avoid air bubbles when collecting blood with the pipette

The best advice we can provide is to pipette slowly and not to introduce air in the first place. Should you get a bubble, we can only suggest carefully and slowly ejecting the blood to remove the bubble before sucking the blood up again.



## Dried blood spots should be the same size and volume



Good, consistent  
blood spots



Small spots or spots of  
different sizes are not ideal