

EBF Dried Blood Spot Consortium - Stability

Presenter: Zoe Cobb on behalf of EBF-DBS Topic team

EBF 2011

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Barcelona

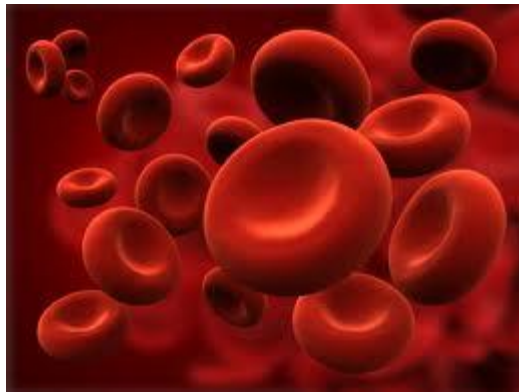
Current slide deck contains EBF work in progress and are consensus ideas of the EBF Topic Team - potentially supplemented with EBF-survey results on the topic

Introduction

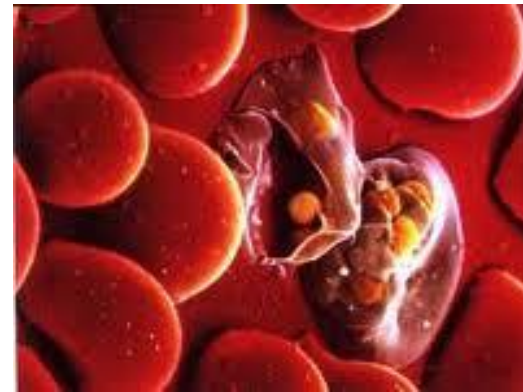
- During first consortium meeting a number of stability related issues were flagged.
 - Including true instability/ recovery, age of control blood, storage conditions, compound and metabolite stability.
- These can be divided into 2 categories.
 - Generic (non compound specific)
 - Compound specific
- Plan to investigate non compound specific first
 - Drying, storage and use of whole blood
- This will provide general recommendations, which then can be used in assessment of stability of potentially unstable compounds.

Key experiment

➤ Age of blood



Day 1



Day ?

Key experiment

➤ Age of blood

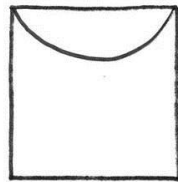
- Some evidence that blood age affects measured concentration
- Is 2 weeks too long or too short?
- Precision and accuracy assessed for 2 weeks
- What about blood spot size?
- Plan to investigate physical effects of blood age on dried blood spots.
- Aim: to provide recommendation upon storage time for blood.

Planned experimental

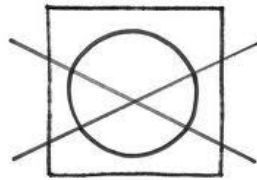
- Investigation into blood spot homogeneity, appearance and size with blood age.
- Variables
 - Anticoagulants
 - Species
 - Euthanised vs. live bleed
 - DBS card type
 - Blood spot volume
- Standardised drying time and measurement of blood spot size
- Blood spot homogeneity measured by adding radioactive compound to blood

Key experiments

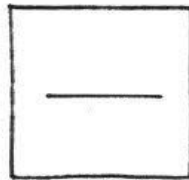
➤ Drying time and storage conditions



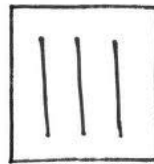
LINE DRY



DO NOT TUMBLE DRY



DRY FLAT



DRIP DRY ONLY



Find out how to dry and how to store.

Key experiments

- Drying time and storage conditions
 - How dry is dry?
 - How does drying time vary in different environments (e.g. humidity and temperature)?
 - How much desiccant should be used?
- Is this information already available from users and manufacturers?

Drying time and storage conditions

➤ Aim

- To provide recommendation of drying times and storage conditions

➤ How

- Prepare and distribute user and manufacturer surveys for collation of data
- Review data and publish recommendations

➤ When

- Both surveys have been / or will be distributed imminently
- Please complete or forward to an appropriate colleague and return by 9th December 2011

Surveys

QUESTIONNAIRE

1. Which DBS cards do you use? (indicate all that apply)

1. Whatman DMPK – A
2. Whatman DMPK – B
3. Whatman DMPK – C
4. ID biologicals 226
5. Agilent card
6. Other (please specify)

.....

2. How do you dry your DBS cards after spotting?

1. At ambient temperature and humidity
2. In a bag with desiccant
3. Other (please describe)

.....
.....
.....

3. How long do you dry your DBS cards for?

1. ≤ 1 hour
2. ≤ 2 hours
3. ≤ 4 hours
4. > 4 hours (please specify time)

.....

If greater than 2 hours can you detail why (e.g. working in high humidity)

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.....
.....

- User survey
- Easy to complete
- Deadline 9th December

EBF- DBS stability group manufacturers survey

November 2011

Please fill out the below questionnaire. The deadline for this survey is January 9th 2012.

The European Bioanalytical Forum (EBF) are performing investigations across member companies with the aim of increasing the scientific understanding and acceptance of dried blood spot (DBS) sampling for the quantitative bioanalysis of drugs and metabolites in studies where the data is used for Regulatory submissions. To assist this, we are asking the manufacturers of currently marketed DBS substrates (GE Healthcare, Perkin Elmer and Agilent) to share information on their products that are commonly used for this purpose. If you choose to disclose this information, we intend to share it with EBF member companies and may summarise the information in a manuscript for an appropriate scientific publication. The appropriate aspects of any such document would be supplied to you for review before external publication. We would therefore be grateful if you would be willing to share any information on the following for your substrates;

1. Variation in spot size when blood, plasma, etc are spotted at different ambient temperatures and humidities
2. Variation in drying time for different biological matrices at different ambient temperatures and humidities
3. Recommended storage conditions for DBS cards before use (temperature and humidity) both in original packaging and once pack has been opened and the effect of exceeding these conditions on spot size etc
4. Recommended storage conditions for DBS cards after spotting (temperature, humidity, containment, etc)
5. Recommended amount of desiccant that the cards should be stored with
6. Does the amount of desiccant needed change with temperature and humidity and if so how?
7. How dry do cards need to be after spotting before they are placed in a storage bag with other samples?
8. Degree of antimicrobial activity of the substrate

Are there any intentions within your company to publish the scientific data that has been used to support your responses on these factors in an appropriate peer reviewed journal?

Thanks from the DBS stability team:

Zoe Cobb (Quotient Bioresearch Ltd); Chris Smith (AstraZeneca); Neil Spooner (GSK); Ludovic Staelens (UCB); Stephen Williams (Charles River).

Surveys

- Manufacturer survey
- Open questions
- Allows as much contribution as willing
- Deadline 9th January 2012

Summary

- Start with generic experiments
- Aim to publish recommendations for storage, drying time and blood age
- Then investigate compound specific factors

Acknowledgements

- EBF
- The stability team
 - Chris Smith
 - Neil Spooner
 - Ludovicus Staelens
 - Stephen Williams

- Note: There is vacancy in the team.