

# The Role of Proficiency Testing in the Contract Laboratory Environment

121<sup>st</sup> AOAC International Annual Meeting  
and Exposition

17 September 2007  
Darryl Sullivan

# Outline

- The contract laboratory world
- Use of proficiency testing for Accreditation
- Use of proficiency testing with new methods
- Analyst training and validation
- Laboratory performance measurements
- Dietary Supplement GMP's
- Independent third party testing

# The Contract Laboratory World

---

- Independent third party testing facility
- Data are used for critical decisions
- The data must be frequently defended
- The contract laboratory is often criticized
- When data are “out of spec” or problematic – the contract lab is often blamed

# Laboratory Accreditation

---

- The contract labs often seek accreditation
  - ISO 17025
  - Other accreditations
- Use of proficiency testing is required
- Different programs are often needed for large labs
- This is important to many CRO's

# Proficiency Testing in Method Development

---

- All new methods require validation in the CRO
- Critical aspects of validation:

# Principles of Method Validation

- Precision
- Accuracy
- Specificity
- LOQ
- LOD
- Linearity
- Range
- Ruggedness
- Robustness
- Extraction Efficiency

# Proficiency Testing in Method Development

- All new methods require validation in the CRO
- Critical aspects of validation:
- Accuracy is often measured with fortified samples
- Proficiency testing is a great accuracy tool
- Method performance can be measured
- True accuracy can be determined in the sample matrix of interest

# Method Validation - Acceptability Criteria

<u>Concentration</u>	<u>Repeatability (%)</u>	<u>Recovery (%)</u>
• 100%	1	98-101
• 10%	1.5	95-102
• 1%	2	92-105
• 0.1%	3	90-108
• 0.01%	4	85-110
• 10µg/g (10 ppm)	6	80-115
• 1 µg/g (1 ppm)	8	75-120
• 10 ng/g(10 ppb)	15	70-125



# Proficiency Testing in Analyst Training

- Analyst training is important in the contract lab
- Training files are often inspected
- Training can include:
  - “In house” control samples
  - Proficiency samples
- Proficiency samples are a great tool for the “final performance evaluation”

# Proficiency Testing in Analyst Validation

- Initial training is documented for all analysts in the laboratory
- Continuous evaluation of analyst performance
  - Duplicate samples
  - Control samples
  - Standard reference materials
  - Proficiency samples
- Proficiency testing provides the strongest continuing evaluation of analyst performance

# Proficiency Testing in other Qualifications

- In addition to analyst training the proficiency testing program can be used in many other applications in the contract laboratory
- These may include:
  - Qualification of new instruments
  - Qualification of method modifications
    - Method extensions
    - Use of new reagents

# Laboratory Performance Measurements

- In addition to analyst validation – laboratory performance needs to be monitored
- QC charts can be used with a number of applications:
  - Control samples
  - Fortified samples
  - Standard reference materials
  - Proficiency samples
- Proficiency test results are the best measure of overall laboratory performance

# Dietary Supplement GMP's

---

- The new Dietary Supplement GMP's require the use of “scientifically valid” methods
- The performance of our methods will need to be demonstrated
- Method validation principles all apply
- Proficiency testing can play a very valuable role

# Independent Third Party Testing

---

- Contract labs are counted on to deliver independent third party data
- These data are often challenged
  - Competitors
  - Regulatory agencies
- Proficiency testing data can play a strong support role

# Independent Third Party Testing

---

- The greatest challenge the CRO faces – litigation
- The data are scrutinized by the legal system
- The results are “attacked” by hostile lawyers
- All QC tools become important
- Proficiency testing can make the difference

# Use of Proficiency Testing in Litigation

- Proposition 65 Class Action suits for acrylamide
- Data between two labs is being compared
- No AOAC Official Method is in place
- The two labs use different method
- The two labs get different results
- Use of a proficiency testing program gained a significant advantage



# Summary

---

- The contract lab has many uses of proficiency testing
- These programs can aid significantly in the laboratory QC programs
- The contract lab must constantly defend its data
- Proficiency testing can differentiate the CRO

# Conclusion

---

- Thank you for your attention
- Darryl Sullivan  
Covance Laboratories  
(608) 242-2711  
[darryl.sullivan@covance.com](mailto:darryl.sullivan@covance.com)