

# Urinary VEGF

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Can we monitor patient's urine to detect either local recurrence or early metastatic disease?

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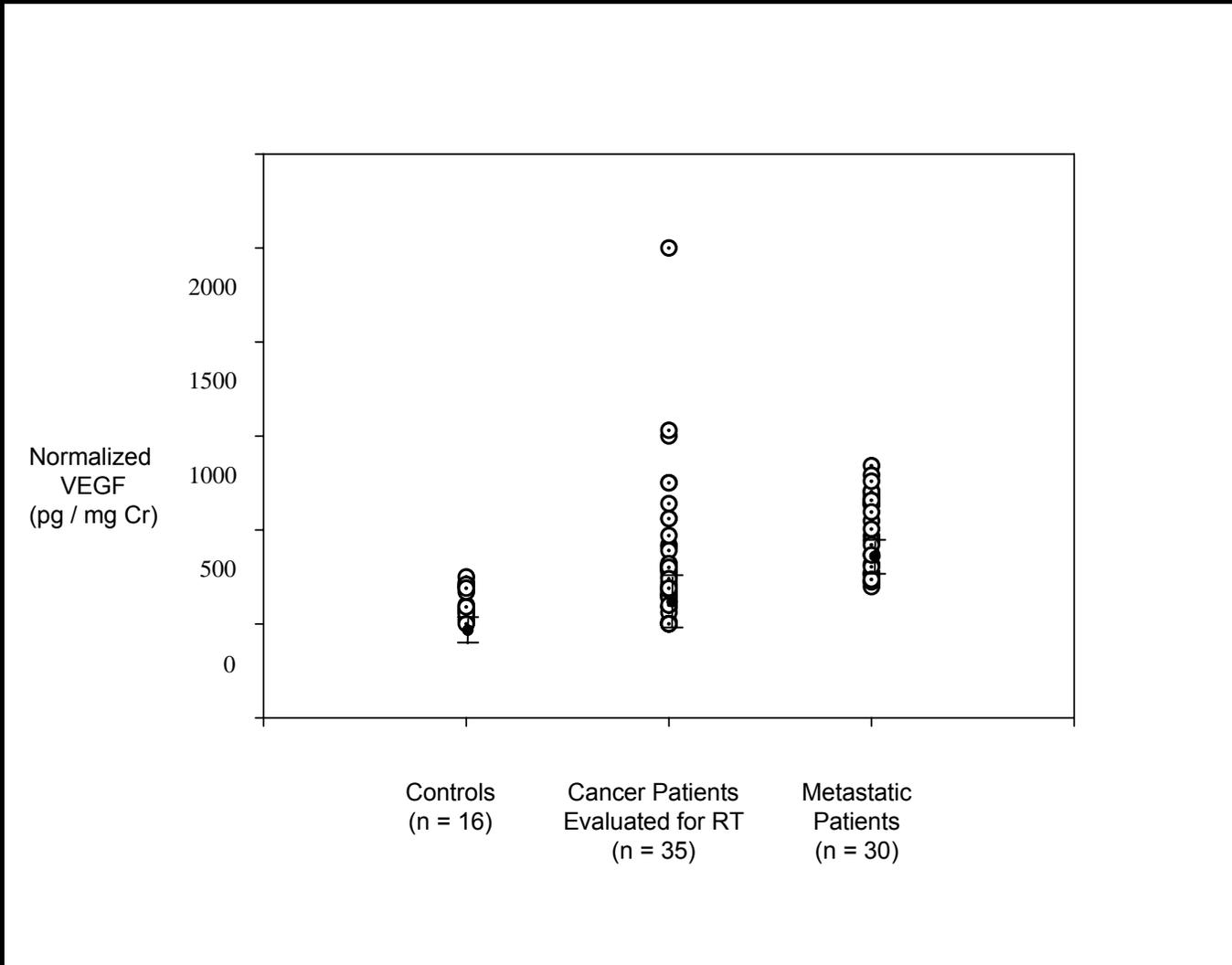
JOURNAL OF CLINICAL ONCOLOGY

ORIGINAL REPORT

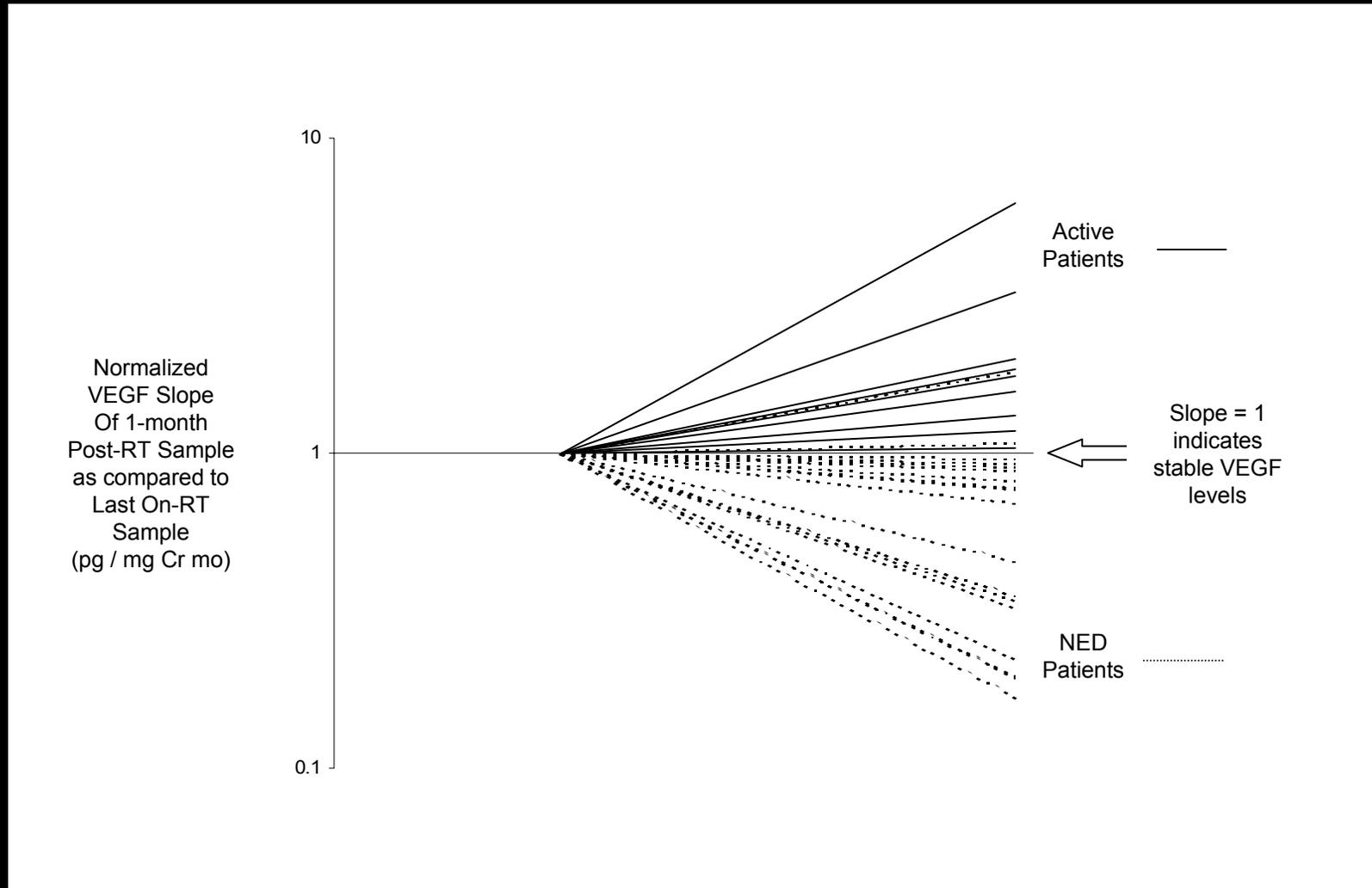
Urinary VEGF and MMP Levels As Predictive Markers of  
1-Year Progression-Free Survival in Cancer Patients  
Treated With Radiation Therapy: A Longitudinal Study  
of Protein Kinetics Throughout Tumor Progression  
and Therapy

*Linda W. Chan, Marsha A. Moses, Elizabeth Goley, Mary Sproull, Thierry Muanza,  
C. Norman Coleman, William D. Figg, Paul S. Albert, Cynthia Ménard, and Kevin Camphausen*

# Urinary VEGF Levels



# VEGF trend: Last day to 1-month Follow-up



# New clinical trial

**RADIATION THERAPY ONCOLOGY GROUP**

**RTOG 0611**

**URINARY VEGF AND MMP LEVELS IN PATIENTS RECEIVING RADIATION THERAPY  
FOR GLIOBLASTOMA MULTIFORME: PROSPECTIVE DETERMINATION OF A  
PREDICTIVE VALUE FOR RECURRENCE**

**Study Chair**

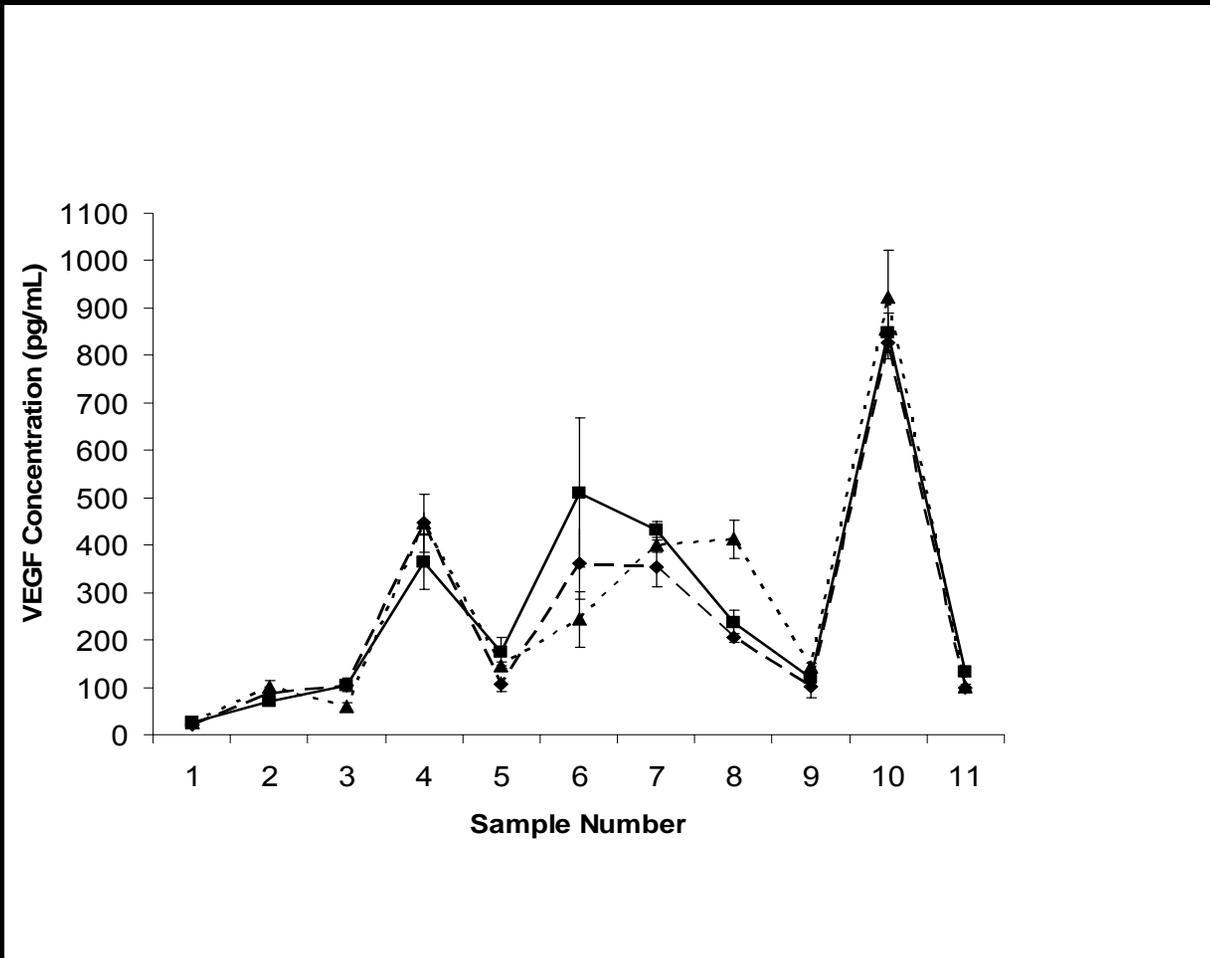
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202 patient  
3 samples each

# Potential Sources of Error

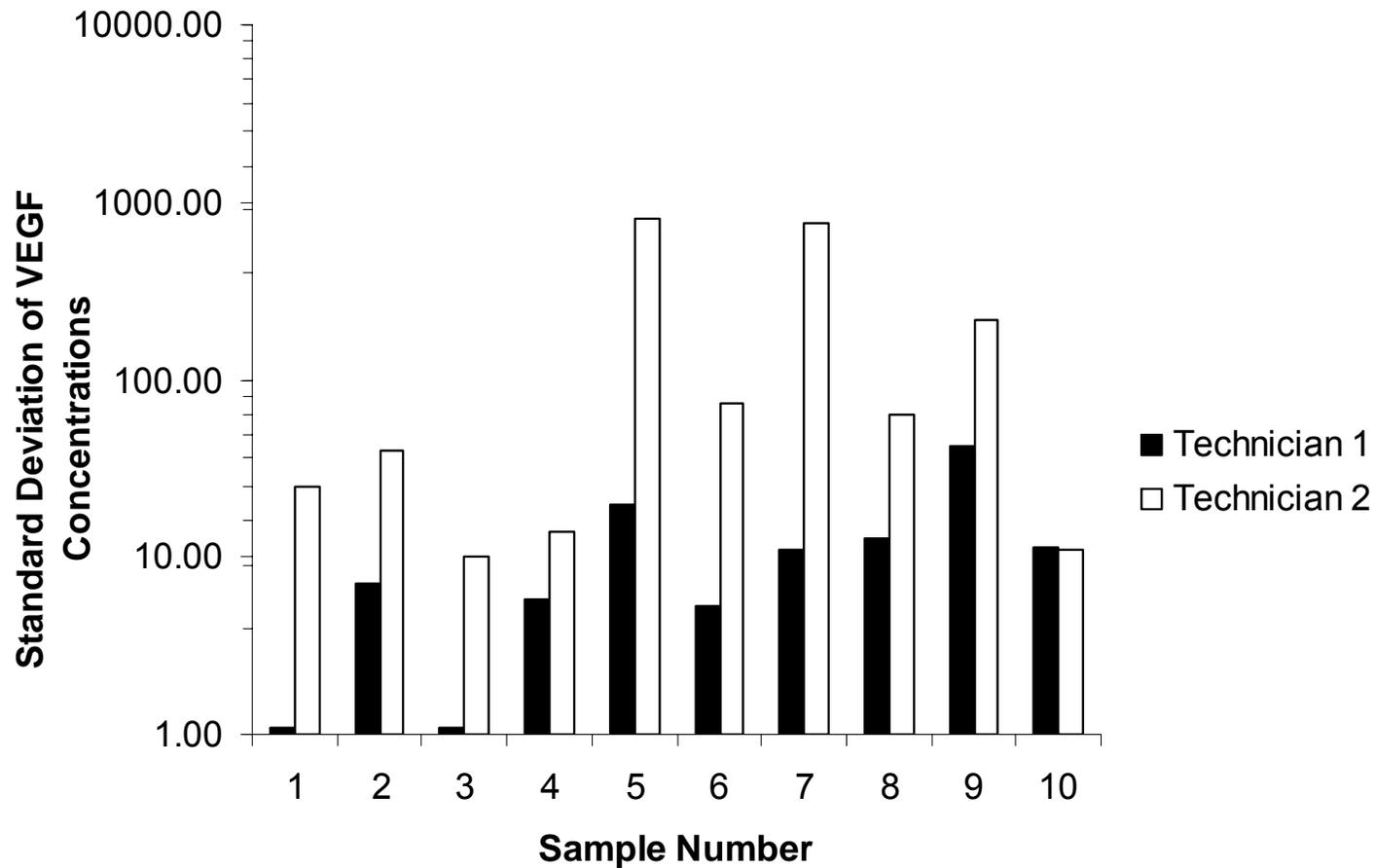
- Sample Issues
  - Time from collection to freezing
  - Length of time frozen
  - Number of freeze thaw cycles
  - Time of thaw
  - Sediment or no sediment
  - Total protein in urine
  - First urine of day
- Reproducibility
  - Eliza lot variation
  - Standard variation
  - Technician variation
  - Not FDA approved
  - Effect of sediment

# Inter-assay variation between three ELISA kit lot numbers



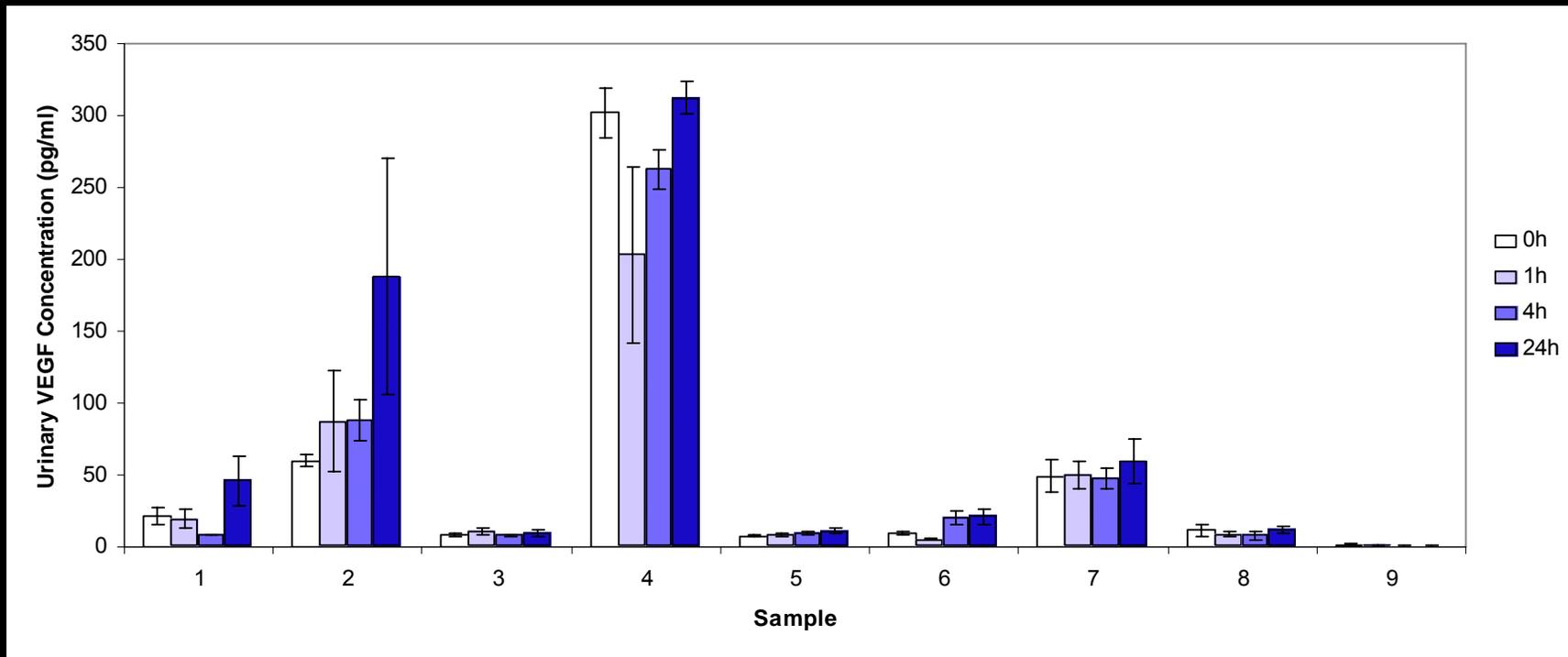
9 of 11 samples showed less than 10% coefficient of variation across 3 lots numbers.  
Bars represent +/-SEM.

# Technician Experience

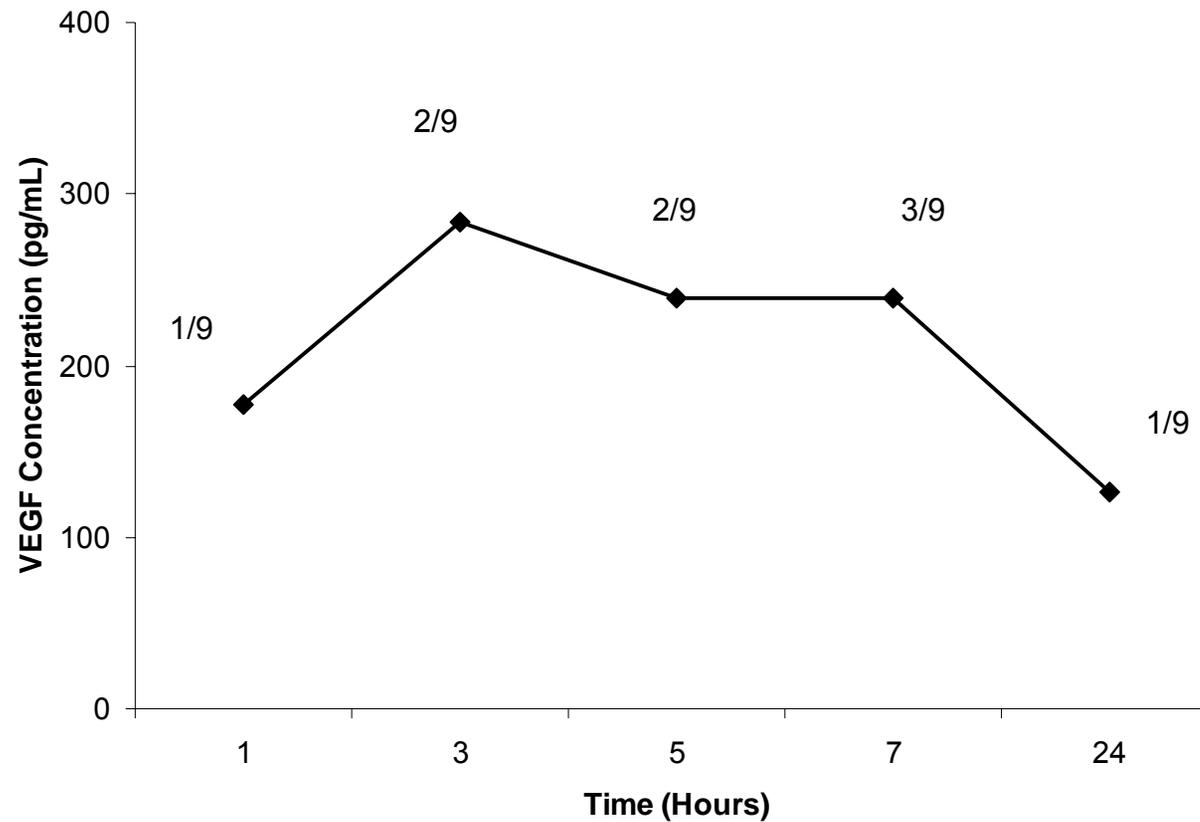


Technician 1=more experienced technician.

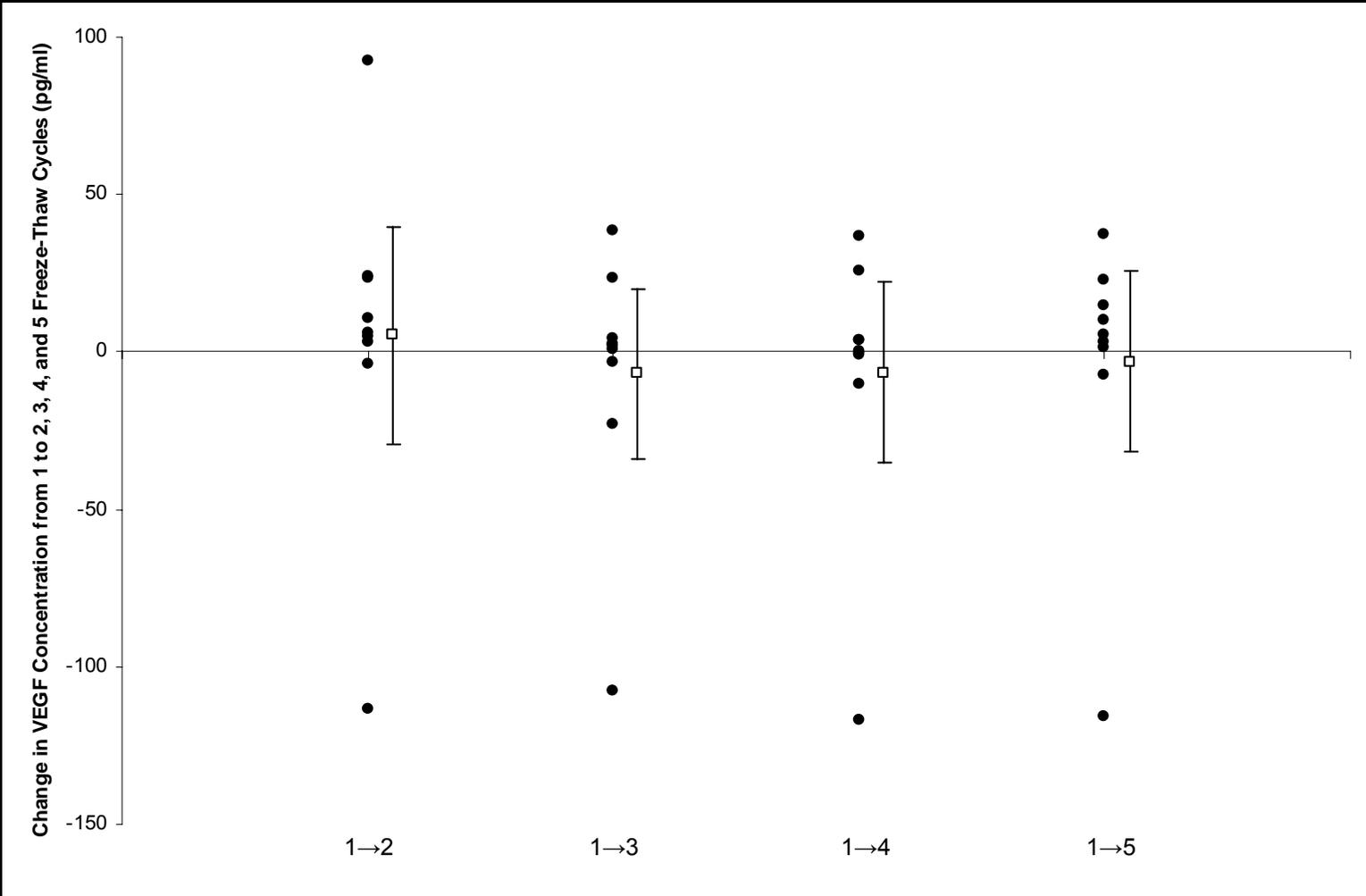
# Urinary VEGF: Time to Freeze



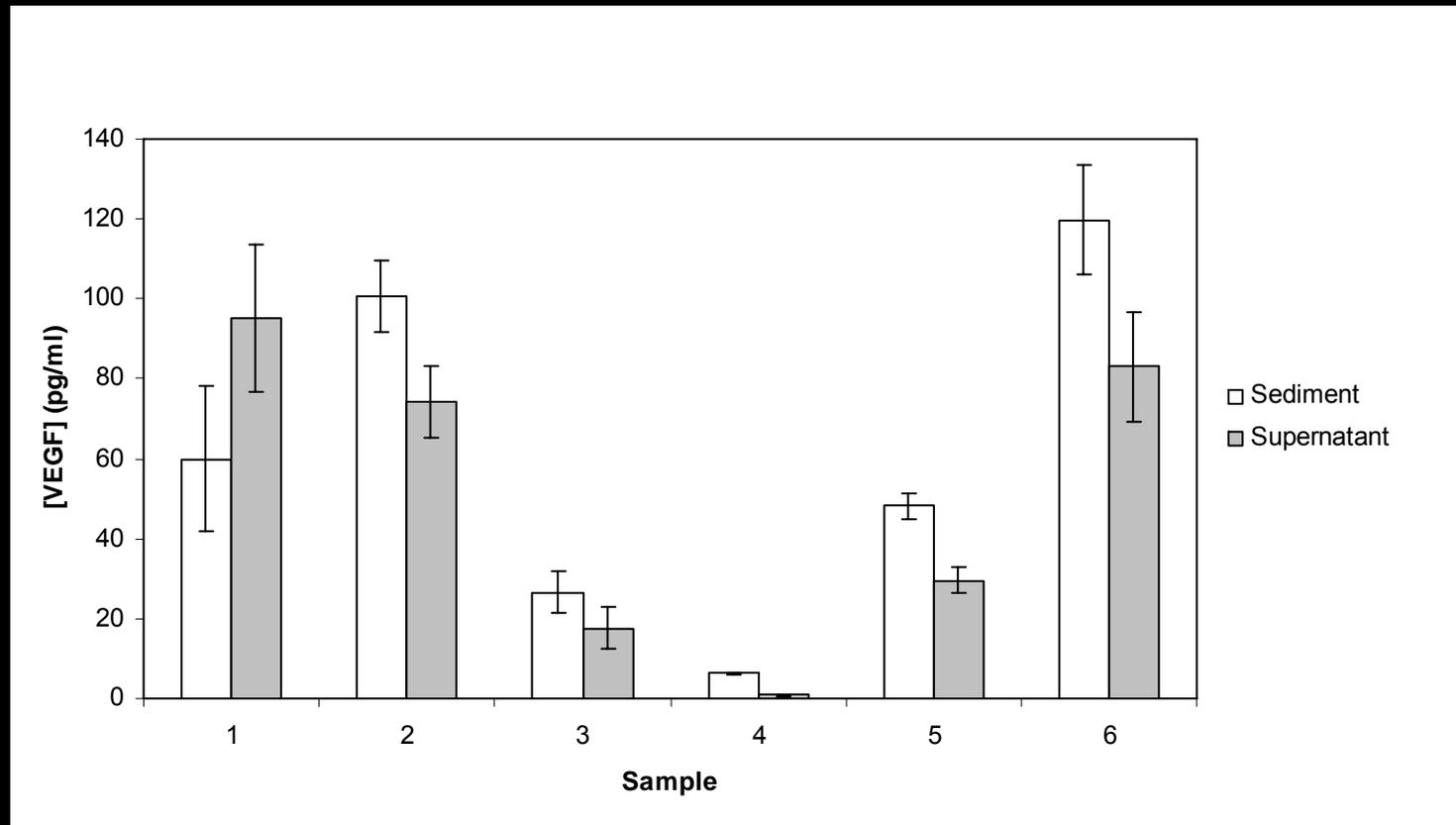
# Urinary VEGF Levels: Various Thaw Times



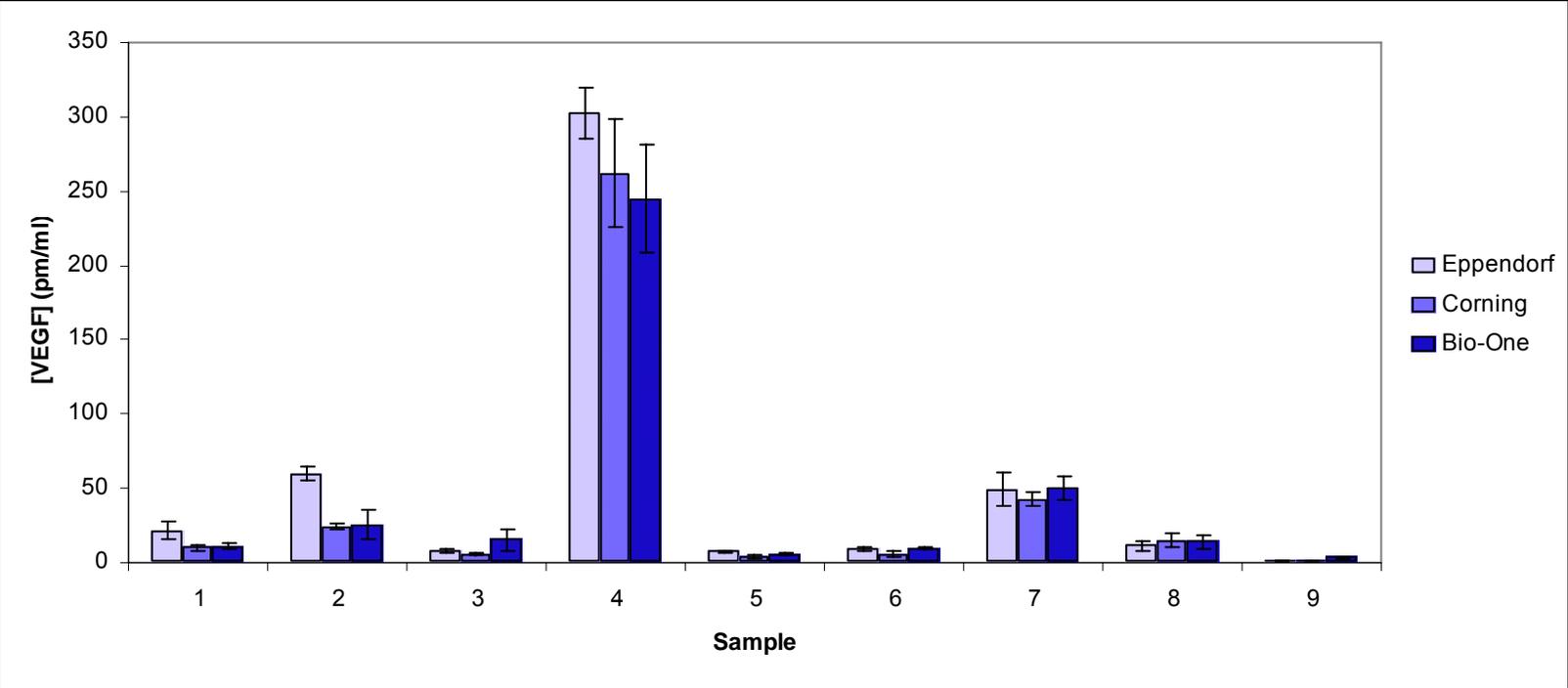
# Urinary VEGF: 1-5 Freeze-Thaw Cycles



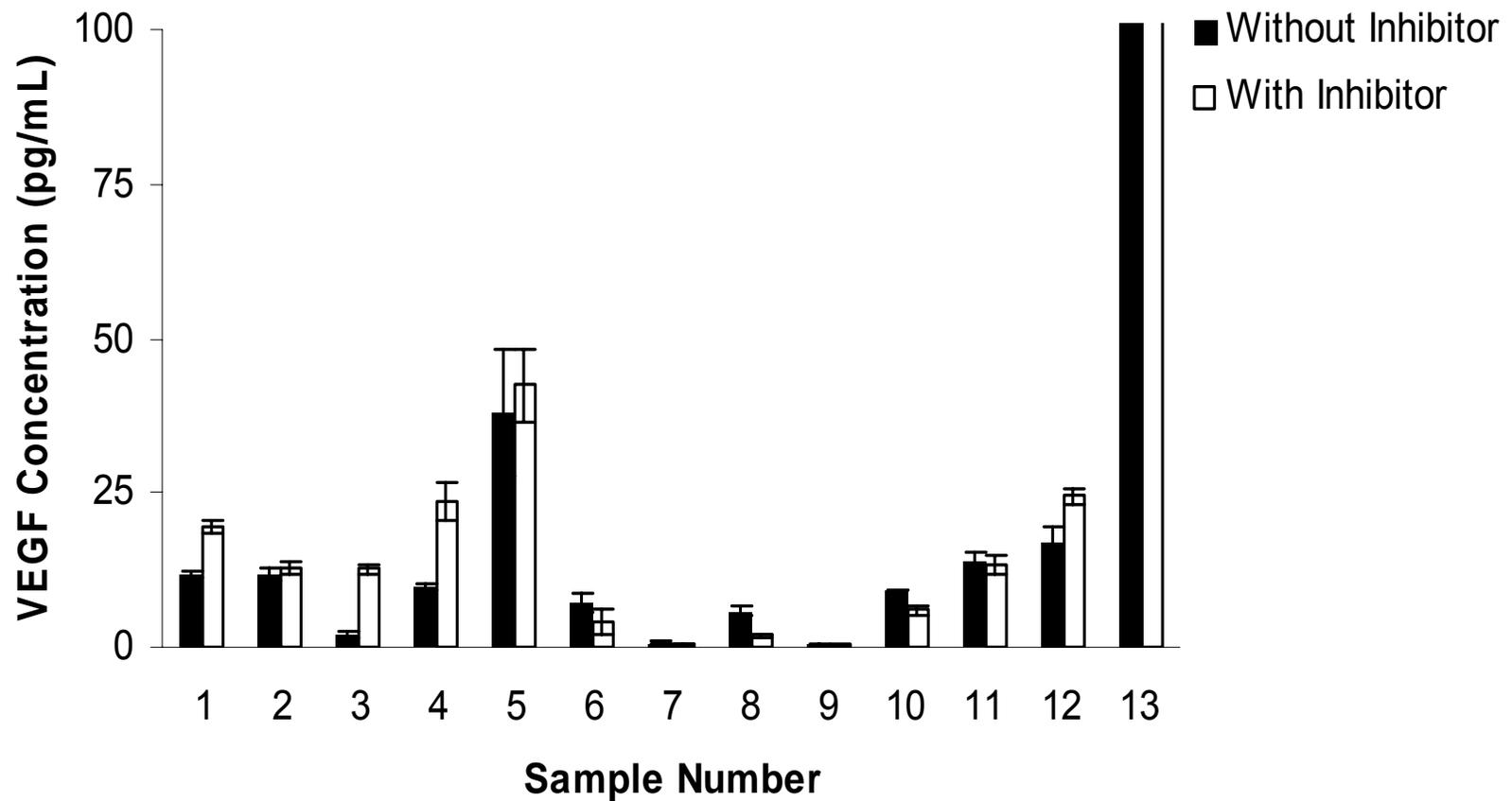
# VEGF Concentration: Sediment vs. Supernatant



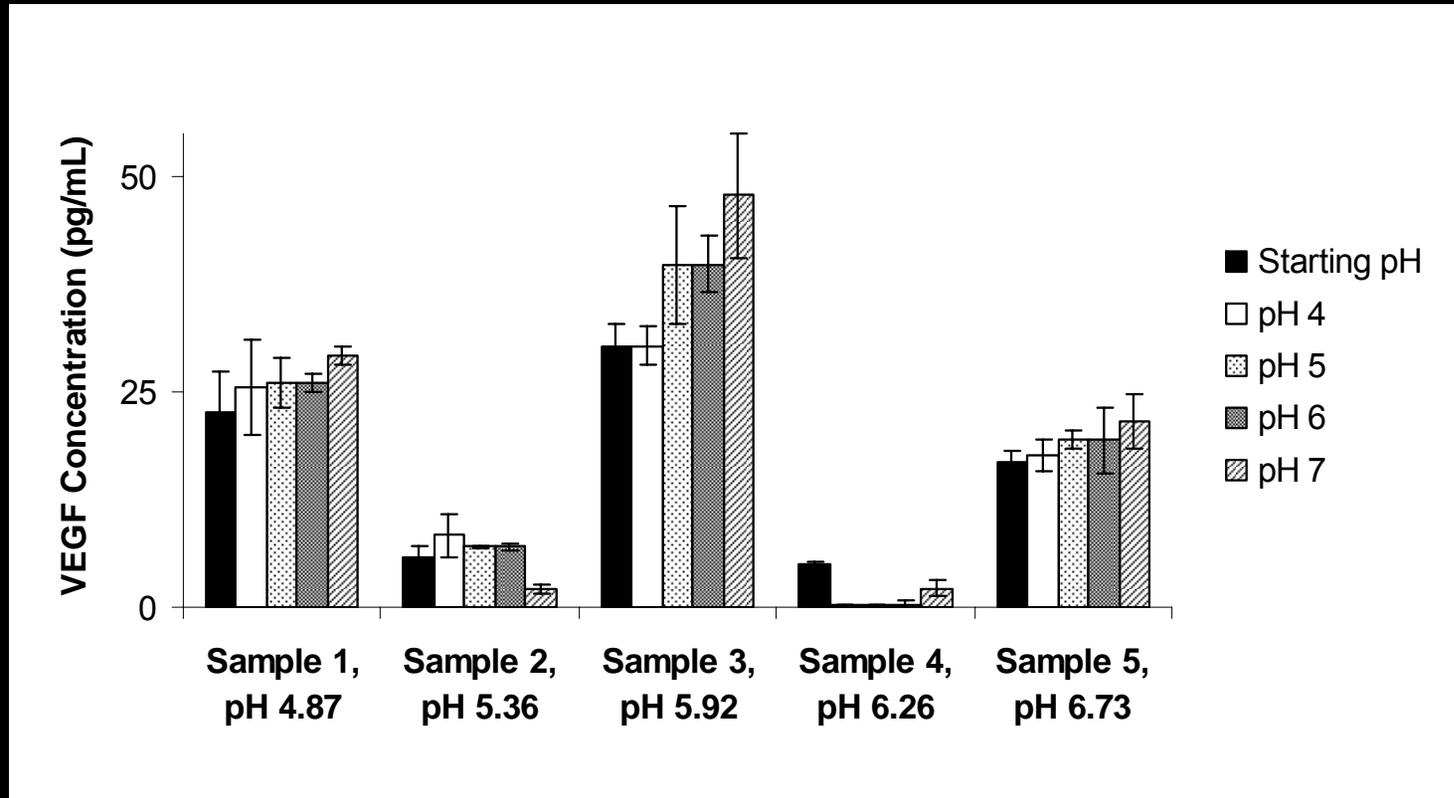
# Urinary VEGF Concentration: Storage Tube Type



# VEGF Levels: +/- Addition of Protease Inhibitors



# VEGF Levels: pH Alteration



# Conclusions

- Assay reproducibility issues are easiest to resolve
- All must be resolved prior to biological
- Biological variability is most difficult to resolve