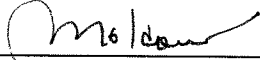


**APPROVED BY**



---

Roberta L. Moldow, Ph.D.  
MENTOR



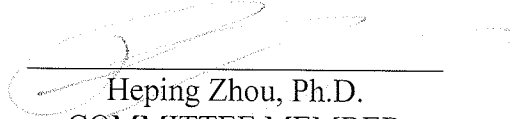
---

Kevin Beck, Ph.D.  
COMMITTEE MEMBER



---

Jane L. Ko, Ph.D.  
COMMITTEE MEMBER



---

Heping Zhou, Ph.D.  
COMMITTEE MEMBER



---

Carolyn S. Bentivegna, Ph.D.  
COMMITTEE MEMBER



---

Angela V. Klaus, Ph.D.  
DIRECTOR OF GRADUATE STUDIES



---

Jane L. Ko, Ph.D.  
CHAIRPERSON, DEPARTMENT OF BIOLOGY