Visual Sciences Training Program (VSTP) Grant

NIH T32-EY07157

PI: Johannes von Lintig, Ph.D.

Visual Sciences Training Program T32 Grant (Commonly referred to as VSTP T32)

Grant number: T32 EY07157
Name of grant: Visual Sciences Training Program Grant (VSTP)
Grant Year: June 1 May 31
Your training dates may be found on your appointment form

Program Director and Principal Investigator
Johannes von Lintig, Ph.D.
Professor of Pharmacology
Department of Pharmacology

Stipend

You will receive your stipend at the end of each month for 12 months. Note: this is not a salary but a stipend. While you are receiving funds in the form of a stipend, health insurance, tuition, travel and research supply funds from Case, you are not an employee of Case. The level of the stipend is set by NIH. Predoctoral stipends are all the same. The postdoctoral stipend is based on the number of FULL years of relevant research experience since receiving your PhD. Predoctoral stipends may be supplemented to levels determined by your home department, as long as monies do not come from federal funds, i.e., a federal grant. Your stipend will remain the same for your first 12 months.

Required Courses/Training

class (taught by Dr. Paul Park) is only available every other spring semester.

An appropriate seminar series for your research.

Summer Ophthalmology Visual Sciences Research Symposium: you will be notified of the date in the Fall.

Education for Protection of Using Human Subjects in Research (only if applicable--see below).

Bioethics (IBMS 500) is a one credit pass/fail, full semester course which must be taken by both predoctoral and postdoctoral trainees (postdoctoral trainees audit the course). It is only offered in the spring semesters. Please contact Rachel Begley rachel.begley@case.edu for instructions on how to enroll.

Education for Protection of Using Huma(a)4(rc)7(h)9((only if a)6(p)9(pli)3(c)4(a)4(ble)]w 141.74 0 0 1 90.024

Speedtype to charge the T32
The grant manager will review the request, verify availability of funds, and approve your purchase. Once your purchase has been approved, the purchasing team will place the order

Computers: Dell, HP or the **Apple Store at Case**. In order to be eligible for discounted CWRU pricing, computers must be ordered through approved vendors. For such a list, you may ask the purchasing team at hubpurchasingtande@case.edu
Common vendors for supply orders: Your research supply funds will stretch further when you

Please be sure to acknowledge VSTP support in your publications, whenever applicable, by using the
Sciences Training Program

Sample letter to request VSTP travel support:

(Date)

Johannes von Lintig, Ph.D.
Director, Visual Sciences Training Program

Dear Dr. von Lintig:

I am writing to request financial support from the VSTP to attend:

Meeting:
Date: May 6-10, 2022
Location: Fort Lauderdale, Florida
Estimated Travel Expenses = $1,480

Hotel: $150/nite x 5 nites	$750
Meals: $45/day x 5 days	$225
Roundtrip Airfare	$475
Transport between airport/hotel	$ 30

Purpose: ARVO is a major forum for vision researchers and practitioners to explore the vast and varied efforts underway to unlock the mysteries surrounding eye diseases. I will be presenting a poster of novel research

Supporting Documentation: Attached please find the accepted abstract, a copy of the meeting registration confirmation form and invitation. Since the VSTP provides a maximum of $800 towards travel expenses, my mentor is willing to provide the remaining required funds.

Contact Details:
(Graduate Student) name, Phone, email
(Mentor) name, Phone, email
Department, location code

Sincerely,

(Student) (Mentor)

address: http://scholar.google.com/

d) Duration of planned training program, including plans for any non-research activities.

e) Human subjects involvement.

f) Use of animals (species, care, procedures, etc); IACUC certification, if appropriate.

g) Signatures.

Trainee:_____ Date:___

Program Director:_____ Date:___

SAMPLE Training Plan to Accompany PHS 2271

c) **Scientific objectives of the trainee's program**

Adhesion molecules and their regulation are integral to our understanding of the development of the visual system. We study the adhesion molecule PTPmu, a receptor tyrosine phosphatase, in the chick visual system. Neurons from the retina contact with and respond to various adhesion molecules by extending long processes known as neurites. Our lab has shown that PTPmu can promote neurite outgrowth. Recently we have determined that E-cadherin promotes neurite outgrowth of retinal ganglion cells. PTPmu is known to bind E-cadherin. We hypothesized that PTPmu phosphatase activity regulated E-cadherin-dependent neurite outgrowth.

At the end of January I will be submitting a first au -cadherin promotes retinal ganglion cell neurite outgrowth which is required by Protein Tyrosine Phosphatase- Molecular and Cellular Neuroscience. The following is a brief abstract outlining the paper.

During development of the visual system, retinal ganglion cells require various extracellular matrix (ECM) glycoproteins and cell-cell adhesion molecules (CAMs) for axon growth and pathfinding. The classical cadherins, N- and R-cadherin are expressed in the retina and have been shown to promote neurite outgrowth. In this study we demonstrate that another classical cadherin, E-cadherin promotes neurite outgrowth of chick retinal ganglion cells at various stages of development when used as a culture substrate *in vitro*. E-cadherin adhesion blocking antibodies specifically inhibit neurite outgrowth on an E-cadherin substrate while neurite outgrowth on N-cadherin is unaffected. The receptor-type protein tyrosine phosphatase, PTPμ, binds classical cadherins such as E-, N- and R-cadherin. We previously showed that PTPμ expression is required for N-cadherin dependent neurite outgrowth. Here we show that down regulation of PTPμ expression results in a significant decrease in neurite outgrowth on E-cadherin. Taken together these findings demonstrate that E-cadherin is an important adhesion molecule for retinal ganglion cell neurite outgrowth and suggest that PTPμ expression is required for outgrowth on an E-cadherin substrate.

Specific Aims:

1. Determine whether PTPμ activity is required for neurite outgrowth on E-cadherin,
2. Identify common and distinct signaling pathways between E-cadherin and N-cadherin in the chick visual system.

d) **Trainee's goals and how they relate to the object of the NEI T32 program.**

My professional goal is a career in teaching and research. To successfully bridge the research and teaching of biology, I need the best possible research training. As a PhD trainee, I am particularly well-suited for the Visual Sciences Training Program which has an emphasis in interdisciplinary research.

c) Plans for coursework and seminars.

Coursework ***(EXAMPLE, depends on DEPARTMENTAL REQUIREMENTS):***

The Department of Molecular and Microbiology requires a minimum of four graduate courses in addition to the medical school curriculum.

Year	Course	Credit	Grade
Year 1 (PhD)	Correlated Curriculum in Cell and Molecular Biology	4	B
Year 1 (PhD)	Correlated Curriculum in Cell and Molecular Biology	4	B
		3	A

necessary tissue is then dissected and used for experiments. Experiments involving embryonic chicks are exempt from IACUC certification.

g) Signatures.

Trainee:_____

Preceptor:_____

Program Director:_____

Stipend Supplementation, Compensation, and Other Income

The grantee institution is allowed to provide funds to an individual in addition to the stipends paid by the NIH. Such additional amounts either may be in the form of augmented stipends (supplementation) or in the form of compensation, such as salary or tuition remission for services such as teaching or serving as a laboratory assistant, provided the conditions described below are met. Under no circumstances may the conditions of stipend supplementation or the services provided for compensation interfere with, raining program.