

**THE CHINESE UNIVERSITY OF HONG KONG**

**Courseware Development Grant (2018-19)**

**Final Report**

Report due 31 May 2019

Please return by email to CUHK cdgs@cuhk.edu.hk

**PART I**

Project title: Refining the flipped classroom on the KEEP Platform to include additional and refined interactive components based on feedbacks from the students

Principal supervisor: Prof. Jiang Liwen

Co-supervisor(s)

Department / Unit: School of Life Sciences

Project duration: From September 2018 to May 2019

Date report submitted: 31 May 2019

**1. Project objectives**

*Is the project on track to meet its objectives?*

*Have the objectives been changed as a result of the experience of working on your CDG project?*

The project objective is to refine the flipped classroom of the course *CMBI4001 Protein Trafficking* on the KEEP Platform to include more and refined interactive components based on the feedbacks from the students, so as to improve the course and teaching continuously. By utilizing more advanced modules of the KEEP Platform, we aim to adopt several improvements to allow better understanding of the contents in the flipped classroom and timely response to the students' questions via the KEEP Platform component.

The project follows its original objectives. We have included explanations for the 105 questions in the 7 online quizzes of the course. A discussion forum and the analysis platform have been established. The new components will be put into use for teaching the course *CMBI4001 Protein Trafficking* in September 2019.

## 2. Process, outcomes or deliverables

*Please specify the number of different types of deliverables produced, and the course(s) (with course codes and titles) that have used the deliverables in Part IV, and provide more detailed descriptions here.*

*Has the nature of the deliverables been changed?*

*Have you adjusted your timeline?*

*Overall, was the project completed satisfactorily?*

Students are required to finish the online quizzes after watching the lecture videos on the KEEP platform. The question types in the online quizzes included Multiple Choice and True or False. We have revised the question configuration so that students are allowed to view the correct answer after answering the questions. We have also added explanation to each question on the platform to target the common misconceptions and mistakes for the incorrect answers. Explanation will be provided for all attempted questions for both correct and wrong answers, in order to reinforce the principle behind. We have included explanations for the 105 questions in the 7 online quizzes of the course.

### 7.6 Multiple Choice

0/1 point (graded)

Which of the following proteins do not localize to Golgi?

EMP12

EMP12-GFP ✓

GFP-EMP12

SYP32 ✗

#### Explanation

C terminus of EMP12 contains Golgi retention signals.

EMP12 with Golgi retention signals will localize to Golgi.

GFP-EMP12 has GFP on its N-terminus. However, the Golgi retention signals on C-terminus are still able to interact. Therefore it still localizes to Golgi.

EMP12-GFP has GFP on its C-terminus. The Golgi retention signals are blocked so that it will localize to post-Golgi compartments.

SYP32 is a Golgi marker protein.

Submit You have used 1 of 1 attempt

Show Answer

A discussion forum has been established to facilitate exchange of ideas. Students can raise their questions encountered while learning via the flipped classroom. They are allowed to add a post in the forum, either in a question form to solicit a concrete answer, or as a discussion form to start a conversation. Other students are encouraged to contribute responses to the post, while the administrator can give comment to a specific response, to provide further explanation or to clarify the concepts.

Home Course Discussion Progress Instructor

All Topics > General Add a Post Search all posts Search

Show all posts by recent activity

Dear CMBI4001 students 1

Welcome to the KEEP Pla... Following

Dear CMBI4001 students

discussion posted 35 minutes ago by jennylcm1303

Welcome to the KEEP Platform for the course! In the discussion section, you can leave your questions regarding the course content. It can either be in question or discussion form. Other students are also welcome to reply the post, while Prof. Jiang and I will provide further explanation or to clarify the concepts.

Jenny (administrator)

This post is visible to everyone.

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0 responses

Submit

Preview

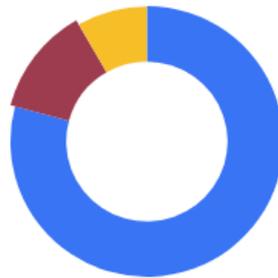
We have utilized the assessment function in the KEEP Dashboard. It allowed administrator to select individual quiz and view students' performance analysis. It can also show the answer distribution of each question. We were thus able to find out the questions that most students get it wrong and the wrong answer that the students chosen. The misconceptions have been tackled correspondingly in the following lecture.

### What will happen to incomplete folded protein within the ER?

Multiple Choice

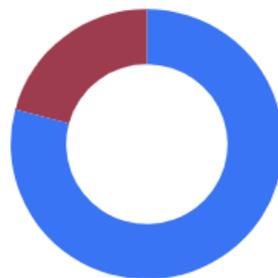
Answer Distribution

● Adding glucose by Glucosyl transferase ● Degradation in ER ● Glucose trimming



Correction Distribution

● Correct ● Incorrect



As this project started at late September 2018 after the end of the course CMBI4001 in this academic year, the new components will be put into use in next academic year (Term 1, 2019-2020) for the same course.

### 3. Evaluation Plan

*Have you altered your evaluation plans?*

*What monitoring data did you collect?*

*Does your evaluation indicate that you have achieved your objectives?*

As this project started at late September 2018 after the end of the course CMBI4001, the new components will be put in use in next academic year. As planned in the proposal after all the lectures in Term 1 of next academic year (2019-2020) finished, we will deliver the surveys to students of that year to evaluate the effectiveness of the improved KEEP Platform in complementing the learning.

Surveys will be performed to evaluate the effectiveness of the videos in complementing the learning of students. The surveys will be performed after the lectures finished. Students will be questioned about the usefulness of the teaching videos in explaining the course content, and whether the e-learning mode via the KEEP Platform can facilitate their learning process. Students are also invited to give comments to the advantages and limitations of the flipped classroom on the Platform.

#### 4. Dissemination, diffusion and impact

*Please provide examples of dissemination: website, presentations in workshops or conferences, or publications.*

*Please provide examples of diffusion: how the project results/process/outcomes/deliverables have been used in your unit and other parts of CUHK or other institutions?*

*Please provide examples of impact: how the project results can be adapted to other disciplines.*

The videos and the related online quizzes have been uploaded KEEP online platform for students taking the course *CMBI4001* to view before classes. The link for KEEP is: [https://edx.keep.edu.hk/courses/course-v1:CUHK+CMBI4001+2018\\_01/info](https://edx.keep.edu.hk/courses/course-v1:CUHK+CMBI4001+2018_01/info)

The work in the project have also been shared as a Poster in the "Teaching and Learning Innovation Expo 2018" held at CUHK on 7 December 2018. The objective and content in the project have been summarized and introduced to the participants via poster presentation.

#### PART II

##### Financial data

Funds available:

Funds awarded from CDG	\$ 90,000
Funds secured from other sources (please specify _____)	\$ 0
Total:	\$ 90,000

Expenditure:

Item	Budget as per application	Expenditure	Balance
RA or PC or EO	80,000	78,335	1,665
Student helper(s)	10,000	11,665	-1,665
Total:	90,000	90,000	0

### PART III

#### Lessons learnt from the project

*Please describe your way forward.*

*Please describe any of the following item(s) accordingly:*

- *Key success factors, if any*
- *Difficulties encountered and remedial actions taken, if any*
- *The role of other units in providing support, if any*
- *Suggestions to CUHK, if any*
  - *Example: what should be done differently?*

We will keep on collecting feedbacks from students taking the course and using the KEEP Platform. Their opinions will be taken in account to further refine the online learning platforms.

We would like to thank the supporting staff from the KEEP team of CUHK for providing professional support on using the advanced modules on the KEEP Platform.

### PART IV

#### Information for public access

*Summary information and brief write-ups of individual projects will be uploaded to a publicly accessible CUHK CDG website. Please extract from Part I the relevant information to facilitate the compilation of the publicly accessible website and reports.*

#### **1. Keywords**

*Please provide five keywords (in the order of relevance to your project) to describe your project.*

- (Most relevant)    Keyword 1: KEEP Platform  
                                  Keyword 2: Flipped Classroom  
                                  Keyword 3: Online Explanation

Keyword 4: Student Performance Analysis

(Least relevant) Keyword 5: Discussion Forum

## 2. Summary statistics

Please provide information, if any, in the following tables, and provide the details in Part I.

<b>Table 1: Publicly accessible online resources (if any)</b>
<p>(a) <b>Project website:</b> <a href="https://edx.keep.edu.hk/courses/course-v1:CUHK+CMBI4001+2018_01/info">https://edx.keep.edu.hk/courses/course-v1:CUHK+CMBI4001+2018_01/info</a></p> <p><i>If a publicly accessible project website has been constructed, please provide the URL</i></p>
<p>(b) <b>Webpage(s):</b></p> <p><i>If information of your project is summarized in a webpage (say a page in the department's or faculty's website), please provide the URL(s) in here</i></p>
<p>(c) <b>Others (please specify):</b></p>

<b>Table 2: Resource accessible to a target group of students (if any)</b>			
<i>If resources (e.g. software) have been developed for a target group of students (e.g. in a course, in a department) to gain access through specific platforms (e.g. CU Learning Management System (Blackboard), facebook), please specify.</i>			
<u>Course Code/ Target Students</u>	<u>Term &amp; Year of offering</u>	<u>Approximate No. of students</u>	<u>Platform</u>
<i>CMBI4001</i>	<i>1<sup>st</sup> term 2018</i> <i>1<sup>st</sup> term 2019</i>	<i>20</i>	<i>KEEP</i>

<b>Table 3: Presentation (if any)</b>	
<i>Please classify each of the (oral/poster) presentations into one and only one of the following categories</i>	<b>Number</b>
(a) In workshop/retreat within your unit (e.g. department, faculty)	

(b) In workshop/retreat organized for CUHK teachers (e.g. CLEAR workshop, workshop organized by other CUHK units)	
(c) In CUHK ExPo jointly organized by CLEAR and ITSC	1
(d) In any other event held in HK (e.g. UGC symposium, talks delivered to units of other institutions)	
(e) In international conference	
(f) Others (please specify)	

<b>Table 4: Publication (if any)</b>	
<i>Please classify each piece of publications into one and only one of the following categories</i>	<b>Number</b>
(a) Project CD/DVD	
(b) Project leaflet	
(c) Project booklet	
(d) A section/chapter in a booklet/book distributed to a limited group of audience	
(e) Conference proceeding	
(f) A chapter in a book accessible internationally	
(g) A paper in refereed journal	
(h) Others (please specify)	

### 3. A one-page brief write up

*Please provide a one-page brief write-up of no more than 500 words for posting on the CDG website.*

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