

# Fast Trak™ training and education

CELL3

## 바이오횰약품 생산을 위한 관류(Perfusion) 배양 공정 기술 집중 과정

기간: 3.5 일

### 코스 소개

Fast Trak CELL3 코스에서는 싱글유즈 (Single-use) 장비를 이용한 관류배양 (perfusion) 및 공정 개발 전략을 다룹니다. 공정 최적화 및 스케일-업을 위한 중요 변수 전반에 대해 학습할 수 있습니다. 실습 과정에서는 관류배양을 위한 배지 및 배양 액세서리 준비 및 실제 세포를 이용하여 관류장비가 연결된 바이오리액터를 운용하며, 교육 전 기간에 걸친 배양 중간 산물에 대한 평가를 수행합니다. 학습자는 세포 대사작용에 근거하여 배지 공급 전략을 이해하고 공정 변수 조절을 통한 배양 결과 변화를 관찰하여, 관류배양 공정에 대한 이해도를 높입니다.

- 관류 배양 기술의 심화된 트레이닝
- 대량 배지 제조
- 관류 배양 공정 개발 및 평가
- 스케일-업

### 코스 일정

- 날짜: 2025년 12월 02일 - 05일
- 장소: Cytiva APAC Fast Trak 센터
- 주소: 인천광역시 연수구 송도미래로 9 BRC 2동 2층
- 식사: 점심식사 제공

### 수강 대상

R&D 연구원, 프로세스 엔지니어, 제조 기술자

### 등록 방법

APAC Fast Trak 웹사이트([bit.ly/fasttrak-kor](https://bit.ly/fasttrak-kor))를 통해 직접 등록 또는 Cytiva 카카오톡채널을 통해 연락주시기 바랍니다.

### 코스 금액 (2025년 기준)

Fast Trak Center	List Price	Product Code
Korea, Songdo	4,596,000 (KRW)	29390647

### 강의 내용

- Media preparation
- Hollow fiber preparation
- Line preparation
- Aseptic fluid transfer
- Process control in bioreactors
- Development of cell culture media for perfusion culture
- Cell metabolism
- Process evaluation
- Calculate cell specific nutrient consumption and design a perfusion rate scheme
- Process optimization
- Culture scale up
- Validation of cell culture based processes
- Analysis of Product concentration



# Fast Trak™ training and education

CELL3

## Perfusion Cultivation Technology

*Duration: 3.5 days*

### Course description

This course focuses on perfusion cultivation and process development strategy using single-use equipment. You will learn how to set-up and optimize perfusion processes. Practical sessions include media preparation, line assembly, bioreactor inoculation and evaluation of cell culture performance using analytical techniques. You will develop a perfusion strategy based on cell growth and nutrient consumption.

- Equipment and line setting for aseptic fluid transfer
- In-depth training on perfusion cell culture technology
- Process development and evaluation

### Who should attend?

This training course will be useful for R&D (research and development) scientists, process engineers, and manufacturing technicians who are interested in perfusion culture. A basic understanding of perfusion process and corresponding techniques is required for this course.

### After the course, you will be able to:

- Have a detailed theoretical background about perfusion process control strategies in bioreactors and scale-up
- Be trained in controlling and evaluating the perfusion culture
- Know how to perform the perfusion culture from material preparation to bioreactor operation
- Have an insight into interpretation of the results and troubleshooting

### Topics covered

- Media preparation
- Hollow fiber preparation
- Line preparation
- Aseptic fluid transfer
- Process control in bioreactors
- Development of cell culture media for perfusion culture
- Cell metabolism
- Process evaluation
- Calculate cell specific nutrient consumption and design a perfusion rate scheme
- Process optimization
- Culture scale up
- Validation of cell culture based processes
- Analysis of Product concentration

## General course information

Fast Trak™ Education is one means by which Cytiva provides application training in the various aspects of bioprocessing.

The courses are designed to provide a learning experience for process development and manufacturing staff.

There are hands-on training courses on column packing, basic chromatography, optimization and scale-up for both pilot and production scales. Courses on validation issues and chromatography theory are also given. The courses are run at our regional Fast Trak centers or customized at your premises.

### Cancellation policy

In case you need to cancel your registration, the following charges will apply:

- 30 to 21 days prior to course: 50% of course fee
- 20 to 8 days prior to course: 80% of course fee
- 7 days or less prior to course: 100% of course fee

If you are unable to attend after registered, you may send a colleague in your place or attend another course.

Cytiva reserves the right to modify course location, course material, substitute speakers, or to cancel the course. If the course is cancelled, registrants will be notified as soon as possible and will receive a full refund of paid fees. Cytiva will not be responsible for airfare penalties or other costs incurred due to a course cancellation.

### Course certificate

Upon completion of the course, each participant receives a course certificate in which course name and course date is stated.

### Course evaluation

At the end of each course, you will be asked to fill in a course evaluation form. We value your opinion of the course, the speakers, the material, and presentations and use this feedback to continuously improve the courses and their contents.

## **Travel and hotel costs**

Travel and hotel costs are not included in the course price.

## **Language**

Standard courses are held in English at Fast Trak Centers in USA, Sweden, Turkey, India, Singapore and Korea, unless otherwise specified. In China, most courses are in Chinese with occasional courses in English. The courses in Germany are held in German and courses in Japan are held in Japanese. Customized courses can be presented in other languages. Please contact the Fast Trak center for more information.

## **Lunches**

All lunches during course days are included in the course prices.

## **Material in binders**

Each course participant will receive the lectures and other relevant material in a binder.

## **Requirements for safety level S1 (L1) laboratories**

Every course participant who enters our laboratories for the practical sessions must comply with certain safety requirements. Please notice that open-toe shoes are not allowed in the lab. Obligatory protective clothing and safety devices will be provided.

**[cytiva.com/fasttraktraining](https://www.cytiva.com/fasttraktraining)**

Cytiva and the Drop logo are trademarks of Global Life Sciences IP Holdco LLC or an affiliate. Fast Trak is a trademark of Global Life Sciences Solutions USA LLC or an affiliate doing business as Cytiva.

© 2020 Cytiva

For local office contact information, visit [cytiva.com/contact](https://www.cytiva.com/contact)

CY14213-07Oct20-FL

