

# **Introducing the science behind targeted treatments and immunotherapy for non-small cell lung cancer**

## **Introduction**

Over the course of two mornings, experienced cancer educator, Dr Elaine Vickers, guides you through many of the most relevant topics relating to modern systemic treatments for non-small cell lung cancer (NSCLC).

The first morning's focus is on the gene faults that drive many NSCLCs and on the targeted treatments that exploit these faults, such as inhibitors of EGFR, ALK, ROS1, B-Raf, HER2, MET and RET.

The second morning is about cancer's relationship with the immune system and on the checkpoint inhibitor group of immunotherapies, which include PD-1, PD-L1 and CTLA-4 targeted antibody therapies.

As ever, Elaine's presentations are full of colourful and enlightening illustrations to help learners make sense of scientific concepts. Elaine's descriptions avoid unnecessary jargon and are pitched so that even those with a limited understanding of cell biology are able to understand.

## **Format**

Each morning's content is split over three presentations of around 40 minutes each. Elaine will be online throughout both mornings to interact with learners and answer questions in the live Q&A sessions that follow each presentation. Videos of the presentations will be available online for 30 days after the live event.

## **Audience**

This content is ideal for research nurses, clinical nurse specialists, pharmacists and clinical trials coordinators. It may also be of interest to other healthcare professionals involved in the diagnosis and treatment of people with lung cancer, and to junior doctors.

## Morning 1:

### Targeted treatments for non-small cell lung cancer

#### Description of content:

Over the course of three videos, experienced cancer educator, Dr Elaine Vickers, guides you through the gene faults and mutations that drive non-small lung cancer (NSCLC). She also explains the rationale behind a wide range of targeted treatments used in the treatment of this disease.

#### Content

##### Session 1 – lung cancer biology and genetics

- Cell of origin of lung cancer
- DNA mutations that drive NSCLC
- The impact of smoking on NSCLC genetics
- The role of EGFR signalling in lung cancer cells

**LIVE Q&A**

##### Session 2 – EGFR inhibitors

- EGFR inhibitors – mechanism of action
- Difference between reversible inhibitors (erlotinib, gefitinib) and irreversible inhibitors (dacomitinib, afatinib, osimertinib)
- Recent clinical trials data
- Targeting EGFR (and HER2) exon 20 mutations

**LIVE Q&A**

##### Session 3 – other targets and treatments

- Targetable mutations other than *EGFR* mutations
- ALK and ROS1 inhibitors
- Newer targets in NSCLC: MET, RET, BRAF, HER2, TRKA/B/C, KRAS
- Angiogenesis inhibitors

**LIVE Q&A**

## Morning 2:

### Immunotherapy for non-small cell lung cancer

#### Description:

The focus of this morning is on cancer's relationship with the immune system, and how this knowledge is being used to improve the outlook of people with NSCLC using checkpoint inhibitor-based immunotherapy.

Elaine will describe checkpoint inhibitors' mechanism of action. And, by drawing on the knowledge gained through many clinical trials, she will also describe their strengths and limitations.

#### Content

##### Session 1 – cancer's relationship with the immune system

- A brief introduction to the immune system
- How cancer's relationship with the immune system changes over time
- How the immune system can recognise and react to the presence of cancer in the body
- Mechanisms of immune-evasion by cancer cells

**LIVE Q&A**

##### Session 2 – introduction to checkpoint inhibitors

- Introduction to T cells and checkpoint proteins
- Mechanism of action of checkpoint inhibitors
- Spot the difference: CTLA-4 and PD-1/P-L1 targeted checkpoint inhibitors
- Examples of results from clinical trials

**LIVE Q&A**

##### Session 3 – making the most of checkpoint inhibitor immunotherapy

- A few lessons learned from clinical trials
- Why combine checkpoint inhibitors with chemotherapy, and why not
- Biomarkers of response and resistance to checkpoint inhibitors

**LIVE Q&A**