

# Demystifying the Science Behind Targeted Treatments and Immunotherapies for Bowel Cancer

## Introduction

The aim of this course is to provide an up-to-date overview of modern systemic treatment approaches given to people with bowel cancer. Including treatment combinations and new approaches currently being investigated in clinical trials.

Dr Vickers' goal is to explain the science that underpins each treatment. She also hopes to provide learners with a broad understanding of why treatments work well for some patients but not for others.

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

## Format

The morning's content is split over three presentations of 30-40 minutes each. Elaine will be online throughout the morning to interact with learners and answer questions. 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 bowel cancer, and to junior doctors.

## About Dr Vickers

Elaine has a degree in Medical Science from the University of Birmingham and a PhD in Molecular Biology from the University of Manchester. She has worked as a specialist cancer educator and writer for almost 20 years. Her goal is to unravel the complexities of cancer biology and new cancer treatments and to make these topics interesting and accessible to non-scientists. Elaine is the author of: "A Beginner's Guide to Targeted Cancer Treatments", which was commended by the British Medical Association's book awards in 2019.

## Description:

Dr Vickers will first of all look at the gene mutations and faulty processes and pathways that give rise to bowel cancer. Elaine also explains the relationship between mismatch repair deficiency (dMMR) and microsatellite instability (MSI).

Elaine then turns her attention to antibodies that target the EGF receptor (EGFR). She also summarises why they're only effective for some people and looks at various reasons for resistance.

Checkpoint inhibitor therapy has recently given highly promising results in trials, but only if the tumour is dMMR/MSI. Elaine will describe why this is and explores whether immunotherapy might still hold promise for people whose cancers don't display this characteristic.

Lastly, Elaine will look at other targeted therapies and immunotherapies that have shown recent promise in trials. These include drugs that target B-Raf, HER2 and Ras proteins.

## Content

### Session 1 – Biology and genetics of bowel cancer

- Cell of origin and mechanisms of development
- Key genetic mutations and defective pathways and proteins in bowel cancer cells
- Recent classification systems and what they mean
- Explaining the relationship between mismatch repair deficiency and microsatellite instability

### LIVE Q&A

### Session 2 – Monoclonal antibodies targeting EGFR

- Refresher of growth factor receptor signalling pathways and the normal function of EGF receptors
- Licensed EGFR inhibitors; summary of pivotal trials
- Further exploration of trial data – comprehensive RAS mutation testing; left vs. right bowel cancers
- Resistance mechanisms to EGFR-targeted antibodies
- Current trials

### LIVE Q&A

### Session 3 – Other systemic treatments

- Angiogenesis inhibitors
- Checkpoint inhibitors for bowel cancer – trial data in MMR-deficient and MMR-proficient cancers
- B-Raf inhibitor combinations
- Targeting HER2, mutated Ras and Trk proteins

### LIVE Q&A