

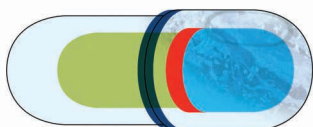


## DuoCap for Controlled Release Combination Products

Over recent years, controlled release combination products have become increasingly popular within the pharmaceutical industry. A number of products have reached global markets and several high-profile brands have generated considerable revenues. Controlled release combination products present complex challenges to formulators and manufacturers such as physico-chemical and biological compatibility, process scale-up and packaging. An ideal solution is Encap's DuoCap delivery system.

At Encap, we have 20 years' experience with global new product development and life-cycle management programmes. Based on our liquid-fill two-piece capsule technology, DuoCap is a single oral dosage unit that comprises a "capsule-in-a-capsule." Patent protected, DuoCap provides controlled and multi-phase release for single or combination prescription and over-the-counter medicines.

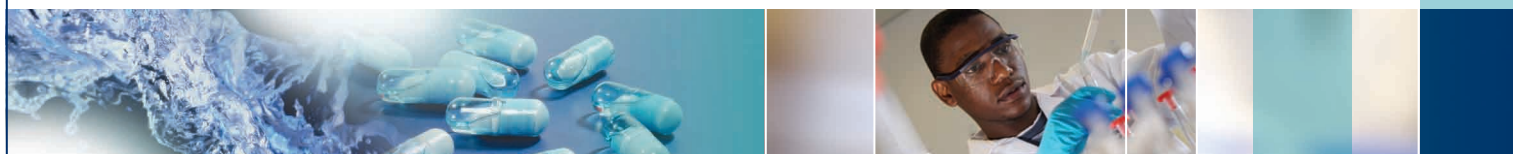
### Encap's DuoCap Delivery System



- Two independent compartments in one dosage unit
- Inner capsule contains liquid, semi-solid or powder formulation
- Outer capsule contains liquid or semi-solid formulation
- Drug delivery targeted to two different regions of GI tract
- Sustained, pulsed or delayed release profiles

#### Advantages of DuoCap Delivery System

Controlled & multi-phase release	Delivery of incompatible APIs
Single oral dosage unit	Broad therapeutic applications
Novel formulation combinations	Patent protected line extensions
Pilot to commercial manufacture	Reduced-time-to-market
Patient convenience & compliance	Simplified drug regimen
Cost-effective therapy	Brand differentiation



# Encap is an international drug delivery solutions provider

We are a global leader in encapsulation solutions and a centre of excellence in liquid-fill two-piece capsules.

Talk to us, to understand how our innovative drug delivery technologies, specialised facilities and know-how can add-value to new product development and life-cycle management programmes.

## Oral Drug Delivery

- Liquid-fill two-piece capsules
- DuoCap
- Abusolve™
- LayerCap™
- Enteric coating technologies
- Controlled & multi-phase release

## Expert Consultancy

## Project Management

## Pre-formulation

- API & material characterisation
- pH-solubility profile
- Solution & solid-state stability
- API & excipient compatibility

## Pharmaceutical Analysis

- Analytical method transfer
- Method development, optimisation & validation
- Dosage unit analysis
- Dissolution evaluation
- Stability testing
- Microbiological monitoring

## Product Development

- Formulation design & optimisation
- Prototype formulations for fast-into-man
- Product characterisation
- Process development
- Global Phase I-III clinical supplies
- Phase III scale-up, validation & technology transfer
- Stability testing
- International registration support

## Commercial Manufacturing

- Liquid, semi-solid & powder-fill two-piece capsules
- Prescription, over-the-counter medicines & high-value nutraceuticals
- Branded & generic products
- High-potency & cytotoxics
- Product packaging
- Batch release & product stability

To receive more information on Encap's services, please contact:

Encap Drug Delivery  
Units 4, 5 & 6  
Oakbank Park Way  
Livingston  
West Lothian EH53 0TH  
Scotland United Kingdom

t : +44 (0) 1506 448080  
f : +44 (0) 1506 448081  
e : [enquiry@encapdrugdelivery.com](mailto:enquiry@encapdrugdelivery.com)

[www.encapdrugdelivery.com](http://www.encapdrugdelivery.com)

partner with the experts

