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## 2

## Substance discovery and product development

## ARTER

Read the explanations and put the following words or expressions into the correct column.

**Research** – the process of testing chemical compounds, with the goal of finding a substance which has a beneficial effect on a targeted disease.

**Development** – the process of carrying forward scientific discoveries made during the research process, with the goal of producing a marketable drug.

analysis of disease • analytical testing • clinical trials • dosage forms •  
drug safety • discovery • new chemical entities (NCEs) • target identification



**Research**

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**Development**

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**What kinds of R & D projects are there in your company at the moment?**

**Which process takes longer – research or development? Why?**

**What factors help pharmaceutical companies decide what drugs they should develop?**

## 1 Read the memo and the information about Mensamint™.

MEMOMEMEMEMO

**Caduceus Pharmaceuticals Ltd**

**Date:** Tuesday

**To:** Pharmaceutical department – Chemists and Pharmacologists

**From:** John Keyes, Vice President R & D

**Subject:** Breakthrough in search for NCE for *Mensapatch*™ development

As some of you will already know, a new chemical entity has just been synthesized in our own labs, which we think may be useful in our *Mensapatch*™ development plans.

A meeting will be held tomorrow at 9.30 a.m. in conference room 308 to brainstorm ideas for this new substance, and to discuss the further development. Your participation would be appreciated.

JK

### MENSAMINT™

*Mensamint*™ is a new dosage form of *Mensadent*™ (obtainable with physician's prescription only). It uses the newly synthesized active substance mensagitatium (Latin origin: the mind moves/animates).

The formulation for adult patients is in lozenge form (or as *Mensadent*™ in chewing gum form for young patients), and the indication is to stimulate brain activity and thinking power.

Known side effects often include loss of sleep if taken in the late afternoon or evening. Occasionally, an increase in blood pressure may occur. Rare instances of heart palpitations and headaches have also been reported. It is not possible to overdose and mensagitatium is non-addictive.

### Answer the following questions.

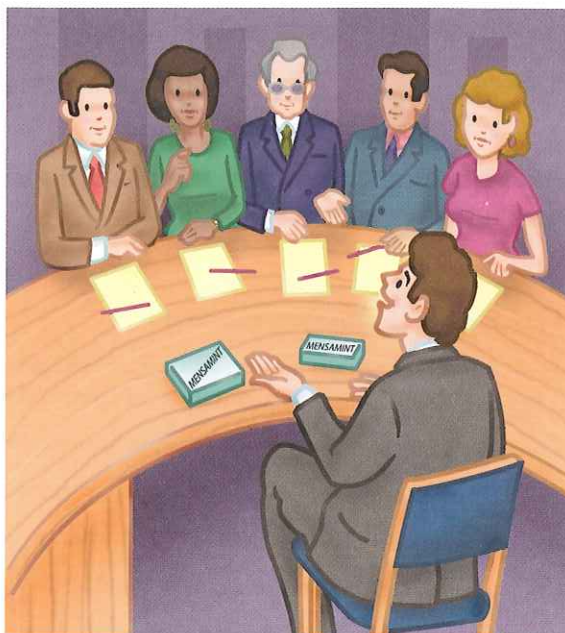
- 1 What is the meeting about, and what needs to be discussed? \_\_\_\_\_
- 2 What kind of product is *Mensamint*™? \_\_\_\_\_
- 3 What do patients have to do to obtain it? \_\_\_\_\_
- 4 What are the dosage forms of this product? \_\_\_\_\_
- 5 Are there any known side effects? \_\_\_\_\_





**2 An R&D meeting takes place, in which John answers questions about a new chemical substance. Read his answers below and write your own version of the questions. Then listen to the meeting and check your answers. Note: not every question is asked during the meeting.**

- 1 \_\_\_\_\_  
It is already available in lozenge and chewing gum form, but we hope to develop a time-release patch in the near future.
- 2 \_\_\_\_\_  
We will have to test the bioavailability to be able to calculate dosages for non-intravenous routes of drug administration for this NCE.
- 3 \_\_\_\_\_  
As you know, when substances are taken with alcohol or antibiotics, their chemical form could change and even cause harmful side effects. I'll keep you informed.
- 4 \_\_\_\_\_  
Not completely. However, we do have a partner to help us develop a patch form which provides the desired effects for at least six hours.
- 5 \_\_\_\_\_  
I'm afraid it may take a year or more before we can start the first tests on healthy humans.



**ASKING ABOUT DRUG DISCOVERY AND DEVELOPMENT**

**Dosage**

What kind of formulation could we develop?  
 What about using other forms?  
 Are tablets, capsules, or drops possible?  
 What about the dosage for these forms?

**Development**

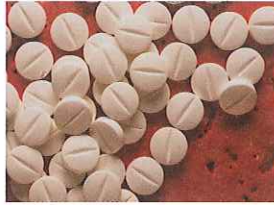
What is the toxicity of this NCE?  
 What about the bioavailability of this NCE?  
 When can we start the first in-man study?  
 Do we have the technology to make patches?

**Talk about a drug in research at your company. Mention the following points:**

development period • dosage form • study results • toxicity

**7 Match the words from the box with the pictures, and fill in the gaps in the following text with the correct dosage form.**

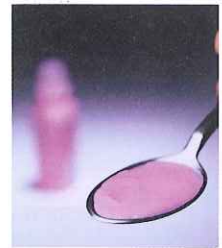
dosage • drops • patch • pills • suppository • syrup • tablets



a \_\_\_\_\_

b \_\_\_\_\_

c \_\_\_\_\_



d \_\_\_\_\_

e \_\_\_\_\_

f \_\_\_\_\_

g \_\_\_\_\_

- 1 Calculating the correct \_\_\_\_\_ for some patients isn't always easy.
- 2 Children and older people often have trouble swallowing large \_\_\_\_\_ or \_\_\_\_\_.
- 3 Wearing a \_\_\_\_\_ may create problems for people with skin allergies.
- 4 Some medications are available in liquid form, such as \_\_\_\_\_ or \_\_\_\_\_.
- 5 We often use a \_\_\_\_\_ to administer medication to babies or other patients who are not able to take drugs orally.