

EIA / MEIA Worksheet

1 Vocabulary warm-up

1 microparticle	vázat se 12
2 coated	skleněná vlákna 7
3 capture molecule	zvýšit/snížit 16
4 surface area	promytí cely 13
5 reaction vessel	značený 11
6 matrix cell	rychlost 15
7 glass fibres	odstranit 14
8 binding	zadržet 10
9 cause	mikročástice 1
10 retain	povrch 4
11 labelled	reakční nádobka 5
12 bind	způsobit, zapříčinit 9
13 cell wash	navázání 8
14 remove	potažený 2
15 rate	matricová buňka 6
16 increase/decrease	záchyťová molekula 3

Source: Dastych, M., English for Laboratory Technicians, Brno – MU, 2008.

2 Microtitre plates

Read and fill the gaps.

A microtitre plate (spelled Microtiter is a registered trade name in the United States) or microplate or microwell plate or multiwell, is a flat plate with multiple (MULTI) "wells" used as small test tubes. The microplate has become a standard tool in analytical (ANALYSIS) research and clinical diagnostic (DIAGNOSIS) testing laboratories. A very common usage is in the enzyme-linked immunosorbent assay (ELISA), the basis of most modern medical (MEDICINE) diagnostic testing in humans and animals.

Each well of a microplate typically (TYPICAL) holds somewhere between tens of nanolitres to several millilitres of liquid. They can also be used to store dry powder or as racks to support glass tube inserts. Wells can be either circular (CIRCLE) or square. Microplates can be stored at low temperatures for long periods, may be heated to increase the rate of solvent evaporation (EVAPORATE) from their wells and can even be heat-sealed with foil or clear film. Microplates with an embedded (EMBED) layer of filter material were developed in the early 1980s by several companies, and today, there are microplates for nearly every application (APPLY) in life science research which involves filtration, separation (SEPARATE), optical detection, storage (STORE), reaction mixing or cell culture.

Source: http://en.wikipedia.org/wiki/Microtiter_plate

Listening

A Listen and complete the gaps

1 the EIA can be done in a multi-well microtiter plate or any other solid adherent surface

2 the plate is prepared to perform a particular assay by coating the wells with antibodies that bind to the antigen of interest

3 then the wells are filled with the clinical sample which could be a sample of serum, respiratory secretions, cerebrospinal fluid, urine or some other body fluid

4 if the antigen is present in the sample, it will bind to the fixed antibodies

5 the wells are then washed out to remove any of the unattached molecules, leaving the antigen of interest stuck to the wells

6 the second antibody, directed against another epitope on the target antigen is added

7 these antibodies are conjugated covalently to an enzyme

8 they bind to the antigen which is fixed in the well and this provides a second level of specificity for the assay

9 the wells are washed again to remove any unbound antibodies

10 a solution of colorigenic enzyme substrate is added

B Find words for the following definitions:

1 not soft, hard **SOLID**

2 determination of the amount of a particular constituent of a mixture **ASSAY**

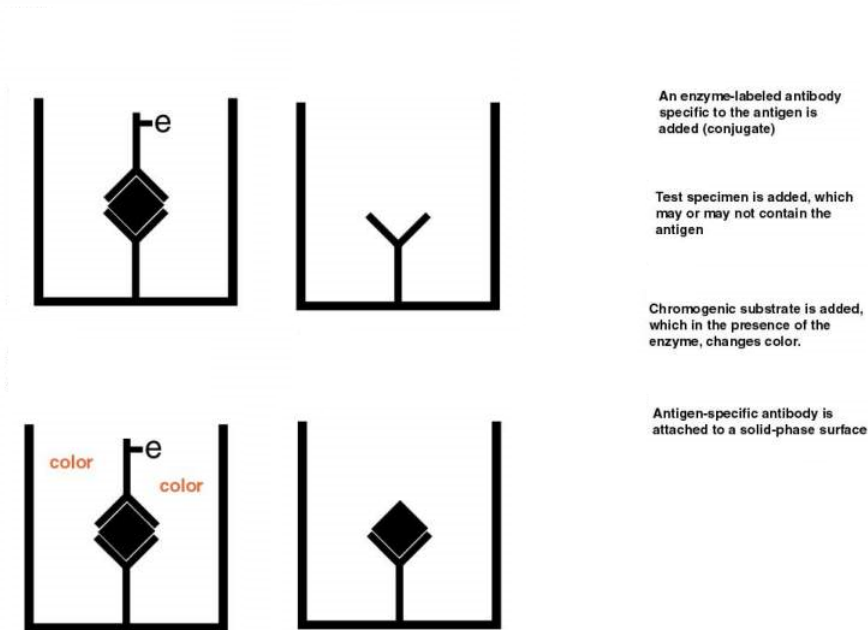
3 take away **REMOVE**

4 joined together **STUCK/CONJUGATED**

5 causing a substance to change colour **COLORIGENIC**

Source: https://www.youtube.com/watch?v=70TPrFL_8-M

3 Describing the assay



An enzyme-labeled antibody specific to the antigen is added (conjugate)

Test specimen is added, which may or may not contain the antigen

Chromogenic substrate is added, which in the presence of the enzyme, changes color.

Antigen-specific antibody is attached to a solid-phase surface

Source: https://www.dshs.state.tx.us/lab/serology_eia.shtm

4 Grammar – Passive voice

42.3 Put the verb into the correct form, present simple or past simple, active or passive.

- 1 It's a big factory. Five hundred people are employed (employ) there.
- 2 Did somebody clean (somebody / clean) this room yesterday?
- 3 Water covers (cover) most of the earth's surface.
- 4 How much of the earth's surface is covered (cover) by water?
- 5 The park gates are locked (lock) at 6.30 p.m. every evening.
- 6 The letter was sent (send) a week ago and it (arrive) arrived yesterday.
- 7 The boat hit a rock and sank (sink) quickly. Fortunately everybody was rescued (rescue).

42.4 Rewrite these sentences. Instead of using **somebody, they, people** etc., write a passive sentence.

- 1 Somebody cleans the room every day. The room is cleaned every day.
- 2 They cancelled all flights because of fog. All flights were cancelled because of fog.
- 3 People don't use this road much. This road isn't used much.
- 4 Somebody accused me of stealing money. I was accused of stealing money.
- 5 How do people learn languages? How are languages learnt/learned?
- 6 People warned us not to go out alone. We were warned not to go out alone.

43.3 Rewrite these sentences. Instead of using **somebody** or **they** etc., write a passive sentence.

- 1 Somebody has cleaned the room.
The room *has been cleaned*.
- 2 Somebody is using the computer right now.
The computer *is being used at the moment*.
- 3 I didn't realise that somebody was recording our conversation.
I didn't realise that *our conversation was being recorded*.
- 4 When we got to the stadium, we found that they had cancelled the game.
When we got to the stadium, we found that *the game had been cancelled*.
- 5 They are building a new ring road round the city.
A new ring road is being built round the city.
- 6 They have built a new hospital near the airport.
A new hospital has been built near the airport.

43.4 Make sentences from the words in brackets. Sometimes the verb is active, sometimes passive.

- 1 There's somebody behind us. (I think / we / follow) *I think we're being followed*.
- 2 This room looks different. (you / paint / the walls?) *Have you painted the walls?*
- 3 My car has disappeared. (it / steal!) It *has been stolen*.
- 4 My umbrella has disappeared. (somebody / take) Somebody *has taken my umbrella*.
- 5 Sam gets a higher salary now. (he / promote) He *has been promoted*.
- 6 Ann can't use her office this week. (it / redecorate) It *is being redecorated*.
- 7 There was a problem with the photocopier yesterday, but now it's OK.
(it / work) It *is working* again. (it / repair) It *has been repaired*.
- 8 When I went into the room, I saw that the table and chairs were not in the same place.
(the furniture / move) The *furniture has been moved*.
- 9 A neighbour of mine disappeared six months ago. (he / not / see / since then)
He *hasn't been seen since then*.
- 10 I wonder how Jane is these days. (I / not / see / for ages)
I *haven't seen her for ages*.
- 11 A friend of mine was mugged on his way home a few nights ago. (you / ever / mug?)
Have you ever been mugged?

Source: Murphy, R., English Grammar in Use, Cambridge University Press, 2012.