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ABCB1
Genetic testing to optimise selection of antidepressants in the treatment of depression

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According to WHO, **depression affects around 2.5 million persons in France each year**. Depression usually occurs in the form of depressive periods that can last weeks, months or even years. Depending on the intensity of the symptoms, the depression is characterised as mild, moderate or major (severe). This disease is associated various symptoms affecting mood and body function: sadness, fatigue, feeling of emptiness and disinterest, but also sleep disorders, change in appetite with loss or weight gain, or persistent dark thoughts that can lead to suicide.

Overcoming depression

Various treatments are now available. Antidepressants play a major role in the medical treatment of depression, and may or may not be combined with psychotherapy.

The choice of medication and its dosage depends on several factors such as the severity of the depression, but does not usually take into account the individual characteristics of each patient. However, we do not all respond in the same way to medication: **its effects depend in particular on genetic factors.**

A better understanding why some people do not obtain the same effects from an antidepressant treatment makes it possible to **adjust** the treatment so that it is more effective, **either by modifying the dosage or by changing the medication.** A genetic test is available for this purpose: **the *ABCB1* gene analysis.**

What are the benefits of analysing the *ABCB1* gene?

Antidepressants are absorbed into the blood which transports them to their target, the brain. To reach the brain, they must cross a barrier, the blood-brain barrier, which may be more or less permeable and thus facilitate or not as the case may be the passage of drugs into the brain. At this barrier, the P glycoprotein or “P-gp”, encoded by the *ABCB1* gene, plays a major role as a gatekeeper, recognising nearly 70% of prescribed antidepressants.

However, it has been shown that **two major mutations of the** *ABCB1* **gene** (known as variants) influence the function of P-gp and consequently, determine the therapeutic effect of antidepressants[1].

Patients who carry variant 1, have a P-gp that is known as **“facilitative”**, because it facilitates the passage of antidepressants that it recognises, optimises their effectiveness and therefore the response to treatment. **Patients who are carriers of variant 2,** have a P-gp known as **“limiting”**, which does not allow a good response of the patient to the treatment[2].

Antidepressants recognised by P-gp*

Paroxetine Deroxat®	Citalopram Seropram®	Escitalopram Seroplex®	Doxepin Quitaxon®	Vilazodone Viibryd®
Amitriptyline Elavil®	Vortioxetine Brintellix®	Nortriptyline Aventyl®	Trimipramine Surmontil®	Sertraline Zoloft®
Venlafaxine Effexor LP®	Duloxetine Cymbalta®	Milnacipran Ixel®		

Antidepressants not recognised by P-gp*

Fluoxetine Prozac®	Mirtazapine Norset®	Agomelatine Valdoxan®	Trazodone Desyrel®	Bupropion Zyban®

**Non-exhaustive list*

If you take an antidepressant that is recognised by P-gp and you are a **Variant 2 carrier, the passage of medication to your brain is limited**, which may explain why your depression is resistant to the treatment. Your doctor may then adjust your treatment, either by increasing the dose or by prescribing another antidepressant, which is not recognised by the P-gp. If you are **variant 1 carrier, the passage of the drug is facilitated** and its effectiveness will be optimised.

Since 2016, *ABCB1* genotyping has been recommended by the Swiss Society of Anxiety Disorders and Depression (SGAD/SSAD).

In fact, it has been shown that the rate of remission of patients with depression was higher in patients who took the ABCB1 test [3,4].

Taking this test will allow you and your doctor to determine which antidepressants are best for you, to optimise their effectiveness and therefore your recovery.

Value of Eurofins Biomnis *ABCB1* genotyping

- **Optimisation of treatment** with antidepressants
- Personalised treatment: **Administration of correct medication at optimum dose**
- Information **for patients with unsuccessful treatment**
- **Higher remission rate**
- The analysis is **only required once** in the subject's lifetime

The *ABCB1* test in practice

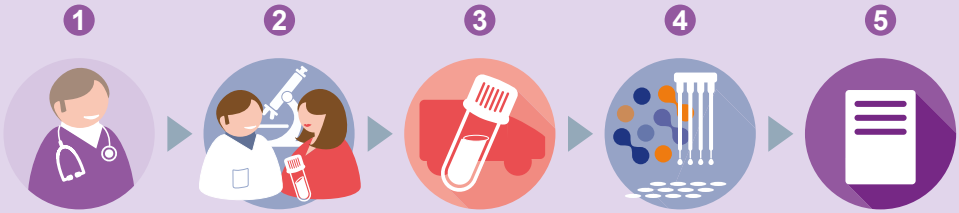
1. **Consultation with your doctor:** Explanation of the *ABCB1* test, prescription of test and signature of the order and the consent certificate (required by French law because it is a genetic test).

2. **Appointment** at a medical laboratory for collection of blood sample.

3. **Sending of sample** to Eurofins Biomnis lab by our authorised carrier.

4. **Analyse of your sample at the Eurofins Biomnis labs.**

5. **Return of result** to the attending physician within 2 weeks.



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For more information, please contact

Eurofins Biomnis
International Division
17/19 avenue Tony Garnier
BP 7322 - 69357 LYON Cedex 07 - FRANCE
E-mail: serviceexport@eurofins.com
wwww.eurofins-biomnis.com

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