M@DE IN DIESSE

Nr. 15, July 2018

DIESSE IS AN ISO CERTIFIED COMPANY: UNI EN ISO 9001:2008 - UNI CEI EN ISO 13485:2012 - ISO 13485:2003, DIRECTIVE 98/79 CE

## CORPORATE GOVERNANCE

*Stefano Marchese,*
*Chief Executive Officer*

The dialectic between two different (and even antithetical) visions of corporate governance is of particular modernity. On one hand, the traditionalist ideology, dating back to the nineteenth-century conception of the enterprise, remains in the background, characterized by marked mastery, paternalistic and self-referential features, and which saw the company ownership right – in the classical sense of full and absolute power over the thing that forms its object – in the hands of stakeholders,; so it can be stated, from this point of view, that management was to the ownership as the factor was toward the owner of agricultural holdings. On the other hand, a more modern vision of the corporate governance took place, which sees this as the point of convergence of a plurality of interests worthy of protection, of the stakeholders, where the shareholding represents one - indeed very important - of the management's reference points, but no longer, certainly, the only one; the legitimate interests of the creditors of financial matrix, of the employees and collaborators, of the suppliers, of the Treasury, of the environment, as well as the social responsibility of the enterprise represent many constraints in the company policies whose directives must, in fact, have characteristics of multidimensionality. Therefore, as is printed in all the modern manuals of corporate governance, the management, in its strategic decisions and its allocative choices, must reconcile the legitimate needs of everyone - and not only of some - between the holders of interests, the stakeholders, and to this end constitutes the moment of synthesis between the different instances, sometimes opposed. This with a common purpose: to create value for shareholders and for the society at large.

## SCIENTIFIC CONFERENCE

*Tatiana Zoppi, Marketing Intelligence Analyst*

On June 14th, at the premises of Toscana Life Science, was held a Scientific Conference for a large group of DIESSE employees.

After the opening speech of Mr. Stefano Marchese, CEO of DIESSE, Mr. Carlo Paoli and Mr. Dario Soldateschi have presented to the audience the latest updates on DIESSE's Research and Development activities. The cornerstone of the conference were the speeches of two prestigious academic guests:

**PROF. SERGIO BERNARDINI**

Director of the UOC Laboratory of Clinical Biochemistry, Policlinico Tor Vergata, Rome

Full Professor of Clinical Biochemistry and Molecular Biology, Tor Vergata University, Rome

President of the Italian Society for Clinical Biochemistry and Clinical Molecular Biology (SIBioC)

**PROF. MARIO PLEBANI**

Director of UOC Laboratory Medicine, Hospital of Padua

Full Professor of Clinical Biochemistry and Molecular Biology, University of Padua

President of the School of Medicine of the University of Padua

The topics discussed during the sessions were the following:

- **The evolution of the clinical laboratory (Prof. S. Bernardini)**
- **Accreditation of the clinical laboratory (Prof. M. Plebani)**

The speakers, thanks to their communication skills as well as the relevant content of their speeches, literally polarized the attention of the whole audience. Both of them provided the current and concrete perspective of the actual situation in which specialized and UpToDate laboratories are working and shed a light on the future of the clinical laboratory in Italy and in the world.

## DIESSE'S CHECK-UP

*Catia Perazzolo, Finance Department*

Every three months, DIESSE makes a check-up in order to see if it is financially and economically healthy. Here are the results of its last check-up, referred to the period Jan. 1 – Mar. 31, 2018 compared to Jan. 1 – Mar. 31, 2017:

| Consolidated figures (€ k.) | 1Q2018 | 1Q2017 | 1Q18/1Q17 |
|---|---|---|---|
| Value of production | € 6.039 | € 5.794 | 104% |
| EBITDA | € 1.481 | € 1.117 | 133% |
| EBIT | € 1.082 | € 696 | 155% |
| Profit from ordinary activity before tax | € 923 | € 537 | 172% |
| Net financial position at the end of the period | € 13.631 | € 14.997 | 91% |

## AUTO_DAT, RPR AND COMPUTER VISION

*Michele Meloni, R&D Director .Instruments and Special Projects*

Diesse introduced in the market with a new system called AUTO_DAT. The acronym "AUTO_DAT " means **Automatic** system for **Direct Agglutination Test**. the processing. The first application was for the **Widal-Wright** test (see made@diesse July 2017). ***Widal****'s reaction is a serological test by which it is possible to search for antibodies to somatic antigen or anti-flagellar antigen H present in the serum of patients who have come into contact with Salmonella typhi and/or Salmonella paratyphi A and B. The reaction of* ***Wright*** *is an examination by which it is possible to research the anti Brucella antibodies present in the serum of patients who came into contact with the bacterium "Brucella abortus". On the system, the* ***Weil Felix*** *reaction (for Rickettsiosis) has also been developed the serological test uses strains of Proteus vulgaris (Oxk, OX2, OX19) as antigens in the diagnosis of some rickettsie infections. In addition, a special application has also entered the* ***RPR*** *test*

**Clinical significance**

Treponema pallidum is an spirochetes i.e. a long spiraliform bacillus that causes syphilis, a sexually transmitted nection (acquired form) or through the placenta of the luetic mother (congenital form). The congenital form of syphilis can be transmitted from pregnant from the 16th week of pregnancy when treponemes, after the placental barrier reach the fetus. RPR (Rapid Plasma reagine) is a non-treponemic test that shows non-specific antibodies directed towards lipid antigens originating from both Treponema and its interaction with the host tissues. Positivity appears after about 40 days after infection and remains present for years in the untreated subject while in the case of therapy tends to shrink to disappear; As a result the antibody title is used to monitor the efficacy of the therapy and the progression of the disease.

**Clinical Indications**

Diagnosis of syphilis.

**Sample Type**

The patient should be subjected to a blood sample.

**Reference values**

Negative.

**Notes**

False positive results can be obtained in the case of many infectious diseases including viral hepatitis, malaria, typhoid, tuberculosis, measles and viral pneumonia but also in many autoimmune diseases in which anti-cardiolipin antibodies are present; Finally, false positivity is also described in healthy pregnant women.

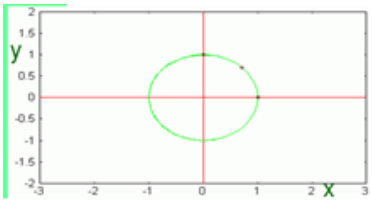
**Antigen reagent (RPR-carbon)**:

stabilised suspension of Cardiolipin, lecithin, cholesterol, choline chloride, EDTA, carbon microparticles in phosphate buffer

The test is performed on Auto: Dat, where the samples to be analysed are dispensed in individual wells of a micorplate with the addition of a reagent rate. After a certain rotation time, the individual wells will form a circle for the test negative samples. Positive specimens do not have special circles, but agglutinated or absolute absence of agglutinate. The analysis is done through Computer Vision techniques. In particular, in this case the presence of the circles is sought. The software applies the Hough transform (**HT**). HT allows to identify forms described by analytical equations, e.g. straight lines, **circles**, parabolas, etc.)

$$f((c,r),(c_c,r_c),\rho) = (r-r_c)^2+(c-c_c)^2-\rho^2=0$$

before elaboration

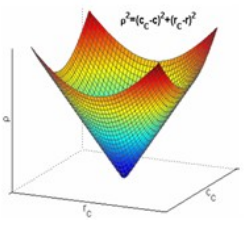



HT

after elaboration

HT transforms the problem of the search for a curve in the simplest search for maxima in general a planar curve is defined in analytical form through a set (limited if it is simple) of parameters. An equation binds the parameters to the Cartesian coordinates •

**f [(x, x), (a1, a2,..., an)) = 0** **(x, y)** is a point of the curve in the image space (SI) . **(A1, A2,..., An)** is an n-upla of values that identify a point in the parameter space (PS). A point in the parameter space uniquely locates an analytical curve ; in our case as the radius is unknown the PS is three-dimensional:



The curve generated in this case is a cone.

## DIESSE AND IN VITRO ANTIBODIES PRODUCTION

*Veronica Ricci, antibodies and antigens production director*

In recent years, DIESSE Spa has invested heavily in biotechnological research, acquiring significant experiences and results regarding hybridoma technology for the production of monoclonal antibodies (Mabs). The use of reagents prepared with these techniques ensure products qualitatively constant over time, contributing to the implementation of diagnostic tests of high specificity and sensitivity. Monoclonal antibodies represent a highly significant component for the development of competitive kits since the almost totality of the immunoenzymatic kits provides for their use.

The antibodies can be grouped into five distinct classes (IgG, IgA, IgM, IgD, IgE) and have the same basic structure: they consist of two pairs of protein molecules, Y-shaped and linked together by disulfide bridges. Two protein chains have a high molecular weight and are therefore called "heavy"; the other two have a lower weight and are called "light". In both light and heavy chains, there are defined definite regions, which have similar structure in the antibodies of the same class; the variable regions are instead extremely differentiated (that is, formed by different amino acids) and allow the antibodies to recognize a huge quantity of foreign molecules (antigens). The recognition between an antibody and an antigen occurs according to a complementary principle of the respective binding sites.

Monoclonal antibodies are antibodies with a known specificity deriving from single producer clones, that is antibody molecules identical to each other and specific for a certain antigenic determinant

Each specific antibody, which recognizes a specific epitope, is produced by a specific B lymphocyte. However, the B lymphocytes cultured in vitro die after a very short time. The discovery of monoclonal antibodies (mAb) dates back to 1975, when 2 researchers Cesar Milstein and Georges Kohler (who in 1984 won the Nobel Prize for medicine) developed the technique for the synthesis of monoclonal antibodies.

They are produced by cell hybrids (called hybridomas), consisting of murine (or rabbit) B lymphocytes specific for a given antigen (Ag), fused with myelomatous non-antibody-secreting cells.

These hybridomas have characteristics of:

- **immortality → conferred by myeloma cells**
- **secreting antibodies → proper to B lymphocytes**

To produce a monoclonal antibody specific for a certain antigen, it is necessary to immunize a mouse (or a rabbit) with this antigen, the B lymphocytes are then isolated from the spleen or lymph nodes of the animal. Then we proceed to the fusion of B lymphocytes with the appropriate immortalized line.

Myeloma lines are the best fusion partners for B lymphocytes, as these cells tend to give rise to stable hybrids more efficiently than other immortalized cells. The hybrids generated are selected in selective culture media containing hypoxanthine, aminopterin and thymidine (HAT), under these conditions will grow and only hybrid cells will survive. The fused cells are then seeded in limit dilution, in such a way that each culture well contains only a hybridoma cell; the supernatants of each well are then tested for the presence of antibodies capable of reacting with the antigen used for immunization. Once the positive wells (ie, wells containing the antibody of the desired specificity) are identified, the cells are cloned and the clones producing the antibody are identified with a screening similar to the first one. To obtain large amounts of antibodies it is possible to grow hybridoma clones that produce antibodies of the desired specificity in large-scale cultures.

The traditional method of in vivo production, using biological fluid, of monoclonal antibodies is notoriously linked to the use of animals; since 2004, our company has started and developed, for all the hybrididomy lines we have available, a project aimed at the production in vitro, on bioreactors, of all the antibodies used in the diagnostic kits produced by Diesse in order to permanently eliminate the use of animals.

EVENTS


## See you in CHICAGO!

We will be glad to welcome you at our stand

**4422**

**July 31st — August 2nd 2018**

## DIESSE AT AFRICA HEALTH, JOHANNESBURG,

In the stand hosted inside the Italian Pavilion, for the second year DIESSE showcased new ESR line instruments — Mini-Cube and CUBE 30 TOUCH — (now available for sale) in Johannesburg at the Africa Health exhibition, to appeal lab specialists with CUBE line's enhanced features.




## CHORUS TRIO COURSE HELD BY GANBARO

On June 20th 2018 GANBARO SRL organized at its premises in Dominican Republic a training course dedicated to its most important CHORUS TRIO customers in Santo Domingo. The speech on "Systemic Auto-mmune diseases. Importance and Clinical Diagnosis" received very positive feedbacks from the attendees who had the possibility to improve their knowledge of our instruments, and to be updated on the newly released auto-immune disease parameters now available on CHORUS TRIO. We congratulate with GANBARO SLR for the success achieved.

## WELCOME!

**We are proud to announce our**

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**FROM PORTUGAL (WITH DESTINATION TO ANGOLA)... AFG.S.A.**

**FROM TURKEY... MYD MEDIKAL SAGLIK HIZMETLERI LTD. STI.**

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