

Honoris Causa



Universitat de Lleida



Richard W. Light

HONORIS CAUSA

INVESTIDURA COM A DOCTOR
HONORIS CAUSA DEL SENYOR

RICHARD WAYNE LIGHT



Universitat de Lleida

Recull de les intervencions i lliçons pronunciades en l'acte d'investidura com a doctor *Honoris Causa* de la Universitat de Lleida del Dr. Richard Wayne Light, que es va fer al Saló Víctor Siurana de l'edifici del Rectorat el dia 7 d'octubre de 2010.

© Edicions de la Universitat de Lleida, 2011

Disseny i maquetació: cat Et cas / Edicions i Publicacions de la UdL

Fotografia de portada: Xavier Goñi. Servei de Reproducció d'Imatge de la UdL

Dipòsit Legal: L-1186-2011

Per a més informació, visiteu la [web de la Universitat de Lleida](#).

ÍNDEX

Salutació	
Dr. Joan Viñas Salas	5
<i>Laudatio</i>	
Dr. José Manuel Porcel	7
Acte de doctorat <i>Honoris Causa</i>	
Sr. Richard Wayne Light	10
Discurs de cloenda	
Dr. Joan Viñas Salas	15

SALUTACIÓ

DR. JOAN VIÑAS SALAS

Bona tarda. Good evening.

Secretària general de la Universitat de Lleida, degà de la Facultat de Medicina, vicerectors, digníssimes autoritats, Dr. Light's family, welcome to the investment ceremony of Professor Richard Wayne Light as an honorary doctor of the University of Lleida.

Hem estat convocats a l'acte solemne d'investidura del Professor Richard Wayne Light com a doctor *Honoris Causa*. Reconeixem, amb aquest ritual solemne, la trajectòria científica i professional al servei de la medicina, així com la seva contribució al progrés i el benestar de les persones.

El Dr. Light és un dels pneumòlegs amb més reconeixement internacional. Un prestigi fonamentat en la recerca clínica i bàsica, però també en gran generositat a l'hora d'impulsar grups de recerca, molts d'ells de països en vies de desenvolupament, una de les formes més eficaces i honestes de contribuir al desenvolupament. Des d'aquest punt de vista, em plau reconèixer el suport que sempre ha donat al grup d'investigació de patologia pleural de la nostra Facultat de Medicina.

Em plau també assenyalar que aquesta investidura es fa en el marc del Congrés sobre Mesotelioma Pleural. Així doncs, vull saludar, de manera molt principal, totes i tots els congressistes que s'han volgut sumar a aquest acte de reconeixement i homenatge al Dr. Richard Wayne Light.

Vull assenyalar, finalment, que amb la incorporació del professor Light al nostre claustre de doctors i doctores, aques s'enriqueix, i li agraeixo, per tant, que hagi acceptat el nostre homenatge.

LAUDATIO

DR. JOSÉ MANUEL PORCEL

Distinguished Rector, members of the university community, colleagues, ladies and gentlemen.

It is a great honor and privilege for me to present Professor Richard Wayne Light for the conferment of an honorary doctorate by the University of Lleida. He is deserving of such an award for his human qualities and scientific contributions.

Professor Light was born in the city of Steamboat Springs, Colorado, in 1942. He graduated from the John Hopkins University Medical School in Baltimore, Maryland, and then completed the internal medicine and pulmonary diseases training program. He subsequently pursued an academic career at the Louisiana State University School of Medicine and became an outstanding clinician and teacher. In 1978 he was appointed Chief of Pulmonary Diseases at the Veterans Administration Medical Center in Long Beach, California, and Professor of Medicine at the University of California. In 1997 he obtained the title of Professor Emeritus, which formally recognized his long academic association with the School. In the same year he moved to Nashville, Tennessee, and took up his current position as Professor of Medicine at Vanderbilt University.

Through his publications and lectures all over the world, Professor Light has become recognized as an authority in the field of pleural diseases. He has authored over 300 original manuscripts, which were published in the journals with the highest impact factor, including the *NEJM*, the *JAMA*, *The Lancet*, *Annals of Internal Medicine*, the *AJRCCM*, *Archives of Internal Medicine*, *Thorax*, *Chest*, *The European Respiratory Journal*, *The American Journal of Medicine*, *Cancer*, and *Medicine*. A great number of these publications have resulted from international collaborations with his fellows and friends, of whom we are proud to form part. The articles by Professor Light, as written expressions of his expertise, are highly regarded and extensively cited in the medical community. His research has had an

important impact on routine clinical practice. For example, his famous criteria, developed 38 years ago to discriminate transudates from exudates, are still the gold standard and a pragmatic first step for confronting a patient with an undiagnosed pleural effusion. In 1995, he also devised an original classification of parapneumonic effusions based on the presence of bad prognostic factors, which has had important implications in therapeutic decision making. An additional invaluable contribution of Professor Light relates to the development of animal models for studying malignant and infectious effusions, as well as the mechanisms of pleurodesis for a number of different sclerosing agents. The role of a myriad of pleural fluid tests, the natural history of pleural effusions occurring after coronary bypass graft surgery, and the use of indwelling catheters for the outpatient management of malignant pleural effusions are also on the list of his research achievements.

Professor Light's most renowned book, *Pleural Diseases*, was first published in 1983 and is now in its fifth edition. It is considered to be the Bible for all physicians and researchers looking for information on this subject. Moreover, he co-edited an equally noteworthy *Textbook of Pleural Diseases*, which recently won the first prize in the Respiratory Medicine category of the prestigious BMA Book Awards. Since 1994, Professor Light has been the author of the chapter on Pleural Disease in Harrison's, the most famous textbook on Internal Medicine. He has served on the editorial board of numerous international journals. He is currently the section editor for Diseases of the Pleura in *Current Opinion in Pulmonary Medicine* and the editor of the *International Pleural Newsletter*. It would take too long to list all the committees or international advisory bodies on which he has functioned as a chairman or member. It is little wonder that Professor Light has received prestigious awards from the ACCP and the ATS.

There have been few clinicians, if any, who have contributed so much to our understanding of pleural diseases worldwide. Fortunately for me, Professor Light, our paths crossed some 10 years ago. Not only have I personally witnessed your rigor and integrity in research, but I've also been impressed by your warmth and extraordinarily sincere personality—qualities that cannot be measured by citation analyses, as were your publications.

For all these reasons, Distinguished Rector, it is with great pleasure that I present to you, for admission to the degree of honorary doctor, Professor Richard Wayne Light.

ACTE DE DOCTORAT *HONORIS CAUSA*

SR. RICHARD WAYNE LIGHT

THE STORY BEHIND LIGHT'S CRITERIA

Es para mí un gran honor recibir el grado de doctor *Honoris Causa* por la Universidad de Lleida, particularmente por tratarse de la más antigua de Cataluña. Mi más sincero agradecimiento al professor José M. Porcel por nominarme para este cargo honorífico. Mi discurso versará sobre la historia de los criterios de Light.

A patient who has fluid between his lung and chest wall is said to have a pleural effusion. The fluid comprising the pleural effusion is called pleural fluid. There are basically two types of pleural effusion. One type occurs due to local factors in the chest and is called an exudate, while the other occurs due to systemic factors such as heart failure and is called a transudate. I developed a method for distinguishing transudates from exudates about 40 years ago. The method is called Light's criteria and this talk will outline how it came into being.

When I was an intern in medicine at Johns Hopkins Hospital in Baltimore, Maryland in 1968-1969, there was a period in which a large percentage of my patients had a pleural effusion. The chief resident, Dr. Richard Winterbauer, would make rounds about midnight and would always ask me if I had sampled the pleural fluid and what were the results of the laboratory tests on the pleural fluid. At that time we would routinely measure the cell count and differential cell count, the glucose, and the protein, and do smears and cultures on the pleural fluid to see whether an infection was present. I would ask Dr. Winterbauer the significance of the various pleural fluid findings and for the most part he had no answer.

It was at this time that additional measurements were being made on blood, such as the lactic dehydrogenase (LDH), SGOT and SGPT. At about the same time, blood gas machines became available, allowing one to accurately measure the degree of acidity

(the pH) and the levels of carbon dioxide and oxygen in body fluids. I theorized that some of these new measurements might be useful in the differential diagnosis of pleural effusions, which have many different causes. After doing a literature review, I developed two hypotheses. The first was that the pH of pleural fluid would be lower in tuberculous pleural effusions than in other exudative pleural effusions. The basis for this hypothesis was an article in the Scandinavian Journal of Respiratory Disease that purported to show this. My second hypothesis was that LDH isoenzymes would be useful in the differential diagnosis of exudative pleural effusions. There are five different types of LDH called isoenzymes. In order to get the absolute value of the LDH isoenzymes, I needed to have the total LDH in the pleural fluid and the serum. A previous study on pleural fluid LDH had concluded that the pleural fluid LDH was elevated in malignant pleural effusions compared with other exudative pleural effusions such as those caused by pneumonia or tuberculosis.

I submitted the protocol to the Institutional Review Board at Johns Hopkins Hospital and received their approval. I made the following arrangements to obtain the various tests. The blood gas machine was in the pulmonary function laboratory and I could measure all the pleural fluid blood gases myself. The clinical laboratory would measure the protein, LDH, and glucose in the serum and pleural fluid without charge. However, I did have to come up with funds to pay for the LDH isoenzymes. I received a small grant from Johns Hopkins Hospital to fund this.

In order to get called when patients with pleural effusions were admitted, I made a deal with my fellow interns and residents. If they would call me when they sampled the pleural fluid with a thoracentesis, I would do the cell count and differential on the pleural fluid. These were duties for which they would normally be responsible. I found out in a hurry that with this arrangement I often got called in the middle of the night about pleural effusions.

The study did not start well. One of the first patients I studied was a young man with an exudative lymphocytic effusion. His pleural fluid pH was 7.40, which is normal. The patient turned out to have caseating granulomas on the needle biopsy of his pleura, which is diagnostic of tuberculosis. So much for the first hypothesis that one could diagnosis

pleural tuberculosis by the pleural fluid pH. Shortly thereafter another patient had a pleural fluid pH of 6.95, which is very low. The pleural fluid was clear yellow and the pleural fluid glucose was not reduced. However, the pleural fluid grew *Streptococcus pneumoniae* and the patient eventually developed a frank pneumococcal empyema with pus in his pleural space. This was the first case that suggested that a low pleural fluid pH might be an indicator that a pleural effusion associated with pneumonia would need drainage of the pleural fluid.

Over a two-year period I studied over 150 pleural effusions. I submitted an abstract of my preliminary findings to the American Thoracic Society for their annual meeting in 1971. The abstract was rejected. I was devastated.

In early 1972 Johns Hopkins had a reunion for some of its alumni. My mentor, Dr. Wilmot C. Ball, Jr., suggested that I present something on the pleural fluids that I had been studying. At that time transudates and exudates were usually separated by using a protein level of 3.0 gm/dl. I elected to see how this would work on my set of pleural effusions. On one rainy, sleety Sunday in Baltimore, Maryland, I spent several hours with a pencil and graph paper plotting protein levels, LDH levels and ratios of the pleural fluid protein and LDH in the pleural fluid and serum.

When I examined my plots, it was obvious that no single value of any of these measurements correctly identified all transudates and exudates. If the cutoff was made high enough so that all transudates were below the cutoff level, then some exudates would be classified as transudates. My objective at that time was to identify all exudates correctly. Therefore I elected to make the cutoff points such that no transudates were above the cutoff level. I noticed that when I did this, some exudates were in the transudative range for each of the measurements. However, I also noticed that if you used three different cutoff levels such that no transudates were above the cutoff line, one could identify almost all transudates and exudates correctly. The three cutoff points that I found were a pleural fluid/serum protein ratio greater than 0.5, a pleural fluid/serum LDH ratio greater than 0.6 and an absolute pleural fluid LDH greater than two thirds the upper normal limit for serum. An exudative effusion met at least one of these three criteria while a transudative effusion met none.

I presented these data to the alumni and they did not seem particularly impressed. I also submitted an abstract on the separation of exudates and transudates by the above criteria to the American College of Physicians in 1972. It was accepted for an oral presentation in Atlantic City. This was the only oral presentation that I ever participated in where the audience graded the contents of the presentation. I got at most average marks—certainly nothing to suggest that these cutoff levels would still be in use almost forty years later. Nevertheless, I wrote the paper and submitted it to the *Annals of Internal Medicine*. There it was accepted with minimal revisions.

This method of separating transudates from exudates was first referenced as Light's criteria in 1989, although the method was used extensively in the intervening years. Since the original publication in 1972, many studies have compared other measurements with Light's criteria for the separation of transudates and exudates, but in general Light's criteria have been proven to be better than anything else. I am amazed that after 38 years Light's criteria are still being used.

I believe that several lessons can be learned from my experience in developing Light's criteria. First, if you want people to cooperate with you on your research, you need to make it worthwhile for them. In this case, I did some of the work that they would otherwise have had to do. Second, although research is best done when it is hypothesis-driven, it is worthwhile to look at your data to determine whether there are other interesting findings. From this study overall, I wrote five papers: on Light's criteria, which this talk is about, on glucose and amylase in pleural fluid, on cells in pleural fluid, on the diagnostic usefulness of pleural fluid pH, and on LDH isoenzymes in pleural fluid. Third, if you initially submit your work and it is not particularly well received, do not give up. Remember that the first abstract on Light's criteria was turned down. Fourth, it is better to be lucky than to be smart. It did not take a genius IQ to sit down and make the plots of the protein and LDHs. Fifth, meaningful research need not be unduly complicated. I have now written more than 400 papers and the one dealing with Light's criteria is probably the simplest of them, but it is the one that made me the most famous.

Thank you for your attention.

DISCURS DE CLOENDA

DR. JOAN VIÑAS SALAS

Senyores i senyors,

La importància i el valor que la universitat dóna a aquest nomenament, el més alt honor que aquesta institució concedeix, es posa de manifest en la solemnitat d'aquest acte, marcat per un ritual antic i d'un alt valor simbòlic.

The importance and value that the university gives to this award, the highest honor that it confers, is revealed in this solemn ceremony marked by an ancient ritual and great symbolic value. The University of Lleida, created by King James II and Pope Bonifacius VIII in 1300, is one of the oldest universities in the world. Since 1991 it has been transformed to become a modern University. Over the last few years years, the University of Lleida has awarded this honor to only a few personalities from all over the world who have excelled in different branches of knowledge, and it is therefore also an honor for us.

Today, with this doctorate, Lleida University wishes to acknowledge the contribution of a man who has dedicated his whole live to medicine and to fighting for better quality of life for humankind. We also know that by conferring this honor we gain a supporter, and we will benefit from his wisdom and his humanity.

Thank you very much, Professor Porcel, for your excellent laudatory speech on Professor Light, one of the best-known pulmonologists at an international level due to his contributions to knowledge of diseases of the pleura. Professor Light is a complete scientist, a physician who is interested in his patients. At the bedside he finds the questions that he takes to the laboratory, combining high-quality clinical and basic research in one specific area, pleural diseases, and in other aspects of respiratory medicine (eg COPD).

Because of his deserved prestige, today there are few international medical conferences on pleural disease at which Professor Light is not present. He has lectured in over 40 different countries (and continues to do so today at the age of 68, when he could have retired). His particular charisma has gained countless friends who have worked with him in clinical research.

Professor Light is sensitive towards developing countries and helps them to improve their clinical work. We must also thank him for his ability to enhance foreign groups interested in pleural diseases, in which he has acted as a mentor. In particular, I wish to thank him for his help with the Lleida research group in pleural disease.

Whether or not they are aware of it, all patients teach the doctor. Each diagnosis and treatment is a process of research, and each patient can and will provide conclusions for others. We learn from successes and from failures. But for this to happen one must be mentally prepared for this process of learning and research, have the knowledge to use it, know the methods of research, and be very humble.

The doctor is not only a scientist hiding behind a mechanical device or a computer. To be a competent doctor one must be good person, a humanist. A famous TV series draws a picture of a doctor whom I do not consider to be a good doctor, even if he is right with the diagnosis. Patients need to be treated as human beings and doctors must be sensitive to their problems and fears and empathize with them. In medical schools we must prepare medical students to acquire these skills, and to do this we must develop their emotional intelligence.

In our medical school we try to teach our students to become good physicians, with skills based on knowledge, skills and those human attitudes. The books of Professor Light form part of their references for pleural and pulmonary diseases.

Congratulations, Professor Light, for your life dedicated to medicine and for all your success. Thank you for agreeing to become an honorary doctor of Lleida University. Today our university welcomes to our faculty a man from science, but also from humanities.

These are, ladies and gentlemen, the arguments used by the Board of Governors of our university when, by unanimous agreement, it decided to invite such an illustrious professor to the Faculty of Medicine. The University of Lleida will benefit from his knowledge and will have a new supporter around the world. Therefore, on behalf of the university community, we thank him.

Aquests són, senyores i senyors, els arguments que tenia el Consell de Govern de la nostra universitat quan, per acord unànim, va decidir incorporar al claustre de doctors tan il·lustre professor. La Universitat de Lleida es beneficiarà del seu saber i al mateix temps tindrà un nou valedor arreu del món. Per això, en nom de la comunitat universitària, li'n dono les gràcies.