

# ***Biocinema*: the experience of using popular movies with students of Biology**

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## **Summary**

Popular movies may be successfully used as a teaching aid in health sciences studies. In the last three years we have been using popular movies in an activity called *Biocinema* during the first trimester with students of fifth year of Biology at the *Universitat Pompeu Fabra*. The activity was planned to help the students to consider the social aspects of their future professional career. Six different films were used: *Outbreak*, *Lorenzo's oil*, *The Boys from Brazil*, *Frankenstein*, *Le maladie de Sachs* and *The Andromeda strain*. The activity was organized in three steps. First, students watched the film after a brief introduction by one of the teachers who were responsible for the activity. Second, this teacher organized an open discussion with the students during the next hour. Third, students wrote a brief report on one of the topics portrayed in the film or mentioned in the open discussion. These reports were further evaluated and contributed a maximum extrabonus of 0.5 points over 10 in the scoring of the regular topics covered in the trimester.

*Keywords*: *Biocinema*, Biology, Teaching, Future professional, Popular movies.

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## **Background of the experience**

Since 1998 a bachelor's degree in Biology is offered at the *Universitat Pompeu Fabra*. These new studies have several characteristics that differentiate them from others offered by Catalan universities. First, they are focused on human biology rather than general biology. Second, a considerable effort was devoted to the development of generic competences, specifically group working, oral presentation, written communication and use of new technologies to obtain scientific information. Third, the existence of a fifth year devoted to professional tracks to enhance the early contact of students with their potential sources of employment. In this year, students chose among Biomedical research, Clinical laboratories and Health industries tracks. They follow a full trimester devoted to specific topics (for instance, *Development of new drugs and health products* and *Pharmacognosy and pharmaceutical technology* in the case of Health industries track). In the next two trimesters, students spend their time working full time in a research unit, a clinical laboratory or a private company in the health sciences area. Each profes-

sional track has a coordinator (the authors of the present paper) who has the duty of participating in the teaching of the topics, supervising the activities of the other teachers, and organizing the practical period in the last two trimesters.

During the first trimester, students enrolled in the respective professional tracks follow specific subjects in which the teaching is organized in traditional lectures and problem-based learning tutorials. These activities give the students a knowledge of the topics needed for their further work in the following two trimesters. While preparing the implementation of the new curricula in the fifth year, the coordinators felt there was a need to stimulate discussion of social implications of their future work and to trigger the reflection on the role of biomedical scientist in a complex world. These objectives seem reasonable aims when the students already are in the final period of their training and only a few months from starting their professional careers.

After some fruitful discussion and a few brain-storming meetings, the coordinators considered

the interest of an activity extensively used during many years by cinema lovers in our country: the cinema forum. In short, this activity implies seeing the film and then a discussion of its aspects by the audience. This was not new to us and a report of previous experiences to teach general pharmacology and clinical pharmacology has been published elsewhere<sup>1,2</sup>. We thought that an updated version of this activity could work with our students using popular movies to better show the problems to be analysed. We christened the activity as *Biocinema*.

**Characteristics of *Biocinema* as a teaching activity**

The main differences regarding the use of movies in this setting is that of focusing the interest of the students not only on factual knowledge but also on the social and personal implications of their future work. *Biocinema* was started in 2002 and thereby we already have three years of experience with this activity.

each year separated by three weeks and we chose Friday noon as the regular time. The duration of *Biocinema* is three hours and students are allowed to have their personal meals during the projection, thereby justifying why *Biocinema* activity is also known as Bio-sandwich. Students are gathered in one of the classrooms that allows the projection of the film using a computer able to read DVD or a video reproducing system, as well as an adequate projection system. After a short introduction about the characteristics of the film by one of the coordinators of professional tracks, the students see the film and the teacher remains in the classroom to cope with any queries that may arise. After the projection is completed, the coordinator starts the discussion with open questions about the aspects covered by the film. Generally, the participation does not need to be encouraged, as the students are active and moderating the session is not always an easy task.

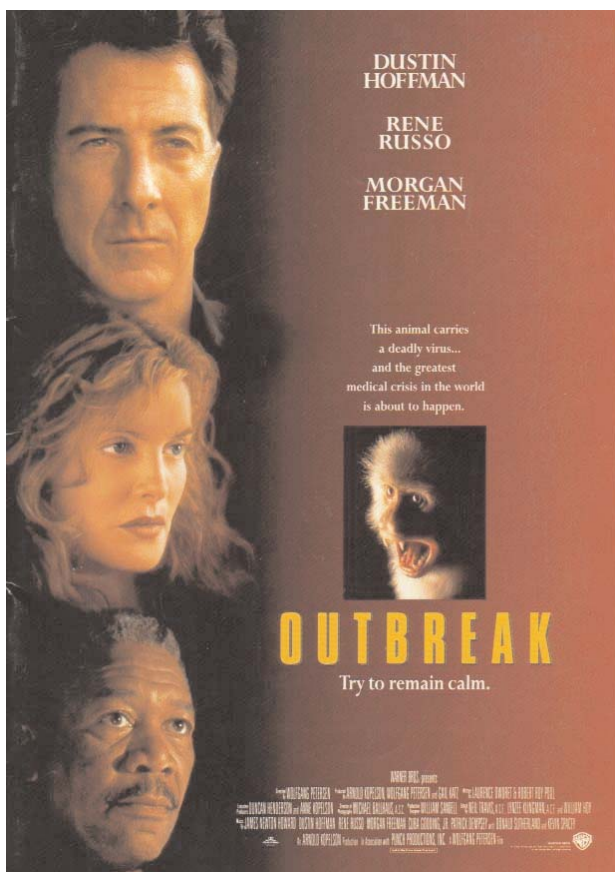


Figure 1: Outbreak

The organization of the *Biocinema* activity is simple. At the beginning of each academic year, the coordinators analyse the results of the previous year and choose the films. Three sessions are organized



Figure 2: Lorenzo's oil

*Biocinema* is considered as a additional activity of the fifth year and it is not a compulsory topic. To stimulate the participation, an extrabonus (up to 0,5 points over 10) in the scores of the students of each professional track is given to those who complete a written report about each film. In the first year, we

asked the students to fill in a questionnaire with questions about the topics covered in the film. Although we expected a short answer for every question, students sent us a written report of ten to thirty pages that was considered by themselves as a heavy task. As a consequence, we changed the model and now we only ask for a two-pages report about one aspect of the movie considered by them as an interesting or conflicting issue. This new approach is better accepted and gives us valuable information about our aims and the students' perceptions. Additionally, it enhances their report-writing ability, one of the generic competences that is highly regarded in the educational goals of our school.

### On the films used in *Biocinema*

In the first year (2002), we choose *Outbreak*, *Lorenzo's oil* and *The boys from Brazil*. In 2003, we repeated the latter but included two new ones: *Frankenstein of Mary Shelley* and *La Maladie du Sachs*. This year we changed the latter for *The Andromeda Strain*.

*Outbreak* (Wolfgang Pedersen, 1995)<sup>3</sup> is a film about the possibility of a national emergency caused by the entry of a virus (probably Ebola virus) used in

the biological war by the EE.UU (figure 1). The aims of using this film were to show the students how a deadly agent may become an awful danger for a community and how politicians and scientists may deal with such a situation. It reinforces the knowledge of the ethical compromises involved in the management of a health crisis and puts the risks of biological warfare in the screen.

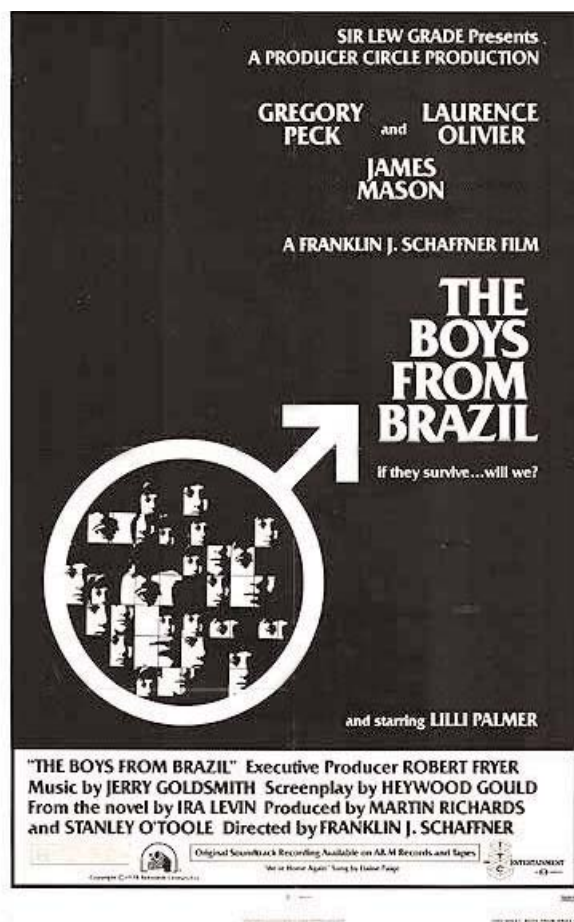


Figure 3: The boys from Brazil

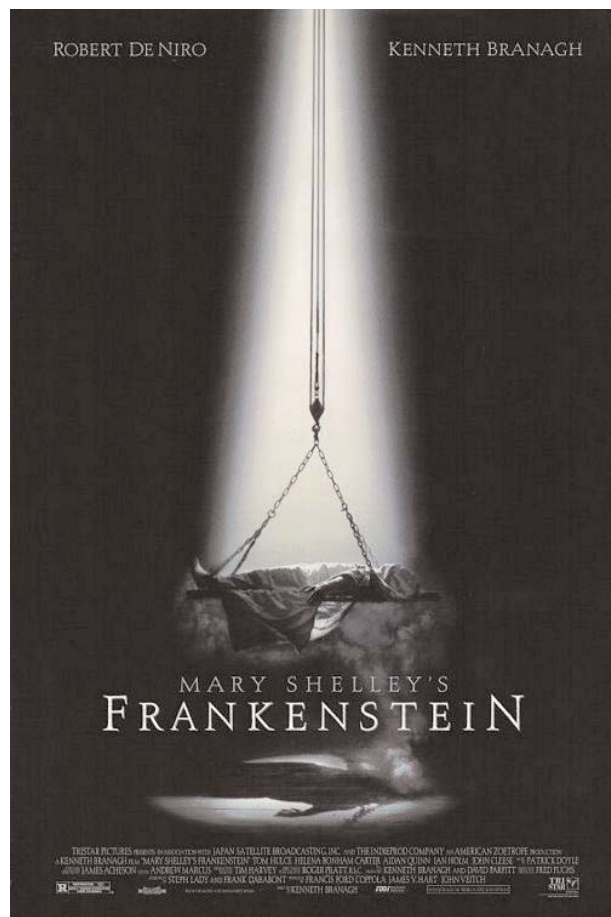


Figure 4: Frankenstein of Mary Shelley

*Lorenzo's oil* (George Miller, 1992) is a nice film based in a true story (figure 2), although some details are changed to make the film more interesting from the public point of view. Its characteristics have been recently analysed in this journal<sup>4</sup>, so we will only outline the interest for biomedical students such as ours. The movie argues against a lack of consideration of the patients when included in clinical trials and the importance of basic science to solve clinical problems. Some of the clues given in the film help to promote discussion of the problems linked to hereditary diseases.

*The boys from Brazil* (Franklin J. Schaffner, 1978)<sup>5</sup> is a terrific film about the cloning of a new Adolf Hitler by German scientists some years after

the end of World War II (figure 3). Surprisingly the film was made in the mid 1980's, when this possibility was only a matter of science fiction. However, as one of the present debates in biomedicine is focused in the human cloning, this movie introduces the discussion of such issues by our oldest students.

*Frankenstein of Mary Shelley* (Kenneth Branagh, 1994)<sup>6</sup> is perhaps the best film based on this classic 19th century novel (figure 4). Although the direction of Kenneth Branagh is perhaps a little bit excessive in several scenes, the movie is an excellent tool to explore the issues of the limits of science and the responsibility about our own facts. Both topics are clearly relevant to biomedical students, and our main aim is to arouse their interest in such topics.

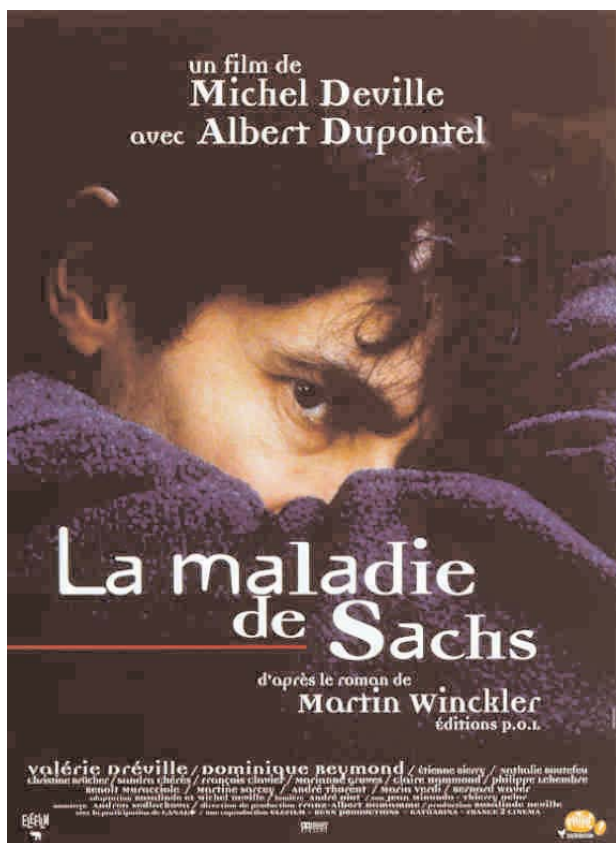


Figure 5: La maladie de Sachs

*La maladie de Sachs* (Michel Deville, 1997)<sup>7</sup>, is based in the novel of the same title written by a French physician, Martin Winckler, and it was awarded a Concha de Plata prize at the Festival of San Sebastián (figure 5). It is a very original film that shows the daily life of a general practitioner working in a small town in France. The movie shows the consideration of his work by patients and how he treats

them with a most humane approach. We expected that our students to be interested in view of medical care and the patient-doctor relationship, as most of our graduates are expected to work closely with physicians in the near future. However, we failed to gain their interest, as probably our students were not so close to medical activity and their discussion centred on collateral and irrelevant issues.

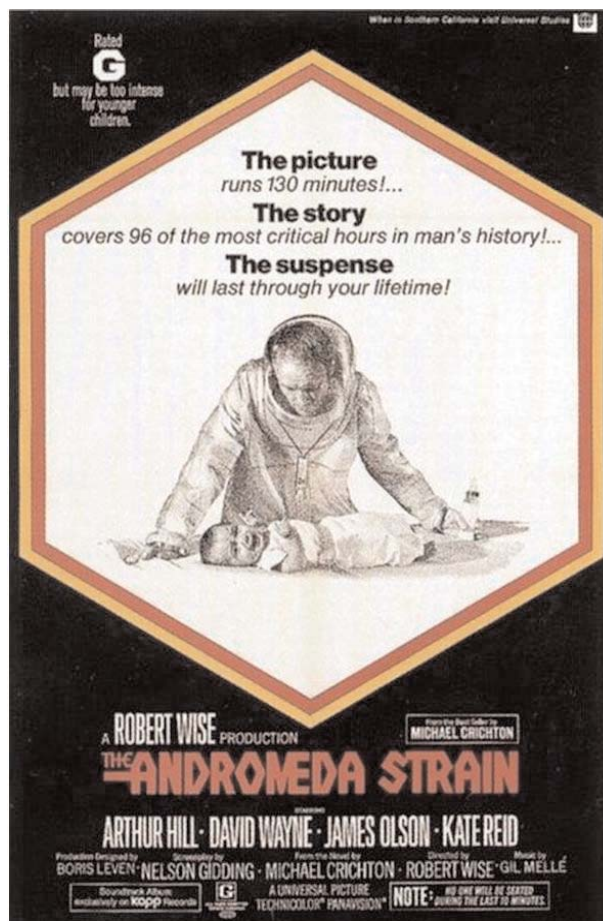


Figure 6: The Andromeda Strain

*The Andromeda Strain* (Robert Wise, 1971)<sup>8</sup> is an interesting movie based in the science fiction novel of the same title written by the US physician Michael Crichton well-known writer for his many books on science issues (figure 6). The film was made in the early 1970s and shows the scenario derived from the appearance of an unknown biological agent able to cause the death of a whole town after a satellite falls in its vicinity. Although the movie is more than thirty years old, it is very interesting to watch. It shown the potential role of science in the modern societies and how it may help to create problems (biological warfare) and to solve them (new infectious agents).

### Conclusion: what we have learned from *Biocinema*

There is no doubt that college students are attracted by cinema (as we are) and popular movies are a very useful tool to see convincing scenarios about those situations considered of interest by teachers. However, not every film is adequate as we should consider several aspects. First, the movie should not be too well-known to students to avoid their initial lack of interest. Second, the projection time should never exceed two hours, as the time to debate about the issues presented by the film is strongly reduced. Third, an evaluation report sent by students in the next week may give the needed background to teachers. It is convenient to consider each movie as an educational experiment. If it works, congratulations; if not, try again as choosing the right film the first time is an uncommon experience.

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