

The SIICA School of Immunology 2017: a gathering for NGS (next generation scientists)

Introduction

On 26th May 2017, just a few days before the kickoff of the national conference of the Italian Society of Immunology, Clinical Immunology and Allergology (SIICA), SIICA (a member society of EFIS www.efis.org) opened its doors to young scientists by hosting its 1st School of Immunology. This builds on SIICA's tradition of actively educating junior scientists by way of dedicated meetings (e.g. the annual international retreat of PhD students in immunology that will take place on October 6–7th in Verona, <http://www.siica.org/siica/node/155>) and by sponsoring the participation of junior scientists at congresses. It also complements the work of other EFIS member societies [1–3] and EFIS-EJI sponsored educational activities [4]. Some international outreach programmes target even younger budding scientists by engaging them at school level [5].

The location of SIICA's School was Bari, a magnificent city in Apulia facing the Adriatic sea, offering wonderful examples of Romanesque architecture and breathtaking landscapes. It was a peaceful place to teach/learn immunology and, of course, to enjoy the local amenities and the terrific food. The school was intended for PhD students, but participation was also extended to young postdocs and anyone seeking a deeper understanding of immunology. Based on their knowledge and their expectations, the students had the chance to choose between two classes: “basic”, suited for either students in the first year of their PhD program or immunology novices; and “advanced”, for those who already had a strong immunological background and wanted to stay up-to-date with cutting-edge immunology. The initial success of

the school was evidenced by the good response obtained during the registration phase. Indeed, more than 80 students arrived eager to learn for the afternoon session on the first day of school.

Playing a great role in this success story were the outstanding teachers from all around Europe, including James P. Di Santo (Paris, France), Andreas Radbruch (Berlin, Germany), Oreste Acuto (Oxford, UK), Giuseppe Pantaleo (Lausanne, Switzerland) and Winfried F. Pickl (Wien, Austria), as well as a panel of exoert Italian Immunologists (see the complete list at <http://www.siica.org/siica/school-of-immunology>), which made the program rich, varied and appealing. After two intense days of lessons, the Saturday night fever around the streets of the old town which led to the last day of the school (Sunday, 28th), was preceded by the candlelight lecture delivered by Alberto Mantovani (Milan, Italy) The end of the lessons was followed by a learning test and the filling out of a questionnaire to gauge participant satisfaction. For many there was no time for after-school recreation as more than 30 students followed-up their learning program at the summer school by participating in the national congress of the Society (<http://www.siica2017.org/>) and becoming SIICA members.

Behind the School: “flipped classroom”, teamwork, and best student awards

Taking a few steps back before the commencement of the school, the SIICA Faculty members decided to get help from a dedicated Junior Faculty, comprising five young immunologists who were SIICA members and who came from

different Italian institutions and backgrounds: Giuseppe Sciumè and Silvia Piconese from Sapienza University of Rome, Alessio Mazzoni from University of Florence, Barbara Cassani from IRGB-CNR and Humanitas Clinical and Research Center in Rozzano (Milan), and Roberta Castriconi from University of Genoa. The role of the Junior Faculty was not only to help with the organization of the School, but also to promote interactions among the students, thus cementing collaborative relationships, and also to serve as a bridge between the students and the teachers.

The first challenge the Junior faculty had to tackle was how to spread the word beyond the official and more traditional communication means. Obviously, in this day and age, social networks were the first choice. Thus, one of the approaches adopted to draw the attention of PhD students to the proposed school was to launch a Facebook contest; the best logo representing the school had to be decided! After an exciting head-to-head contest, the best logo was chosen through a very contemporary popular vote, involving hundreds of likes (<https://www.facebook.com/siica.immunologia/>). Although the method can be debated, the SIICA Facebook page and the School of Immunology Facebook event drove increased awareness and were subsequently used to provide the students with information about the activities of the school, the teachers involved and the lessons (topics) planned. In particular, the Meet the Teacher section on the official SIICA Facebook page was an effective tool to bring the speakers and their research topics to the students in an informal way.

Another strategy used to connect the students before they met at the School was to assemble working groups just a few days after the registration deadline.

Each group, which was comprised of 3 to 4 members preferably from different cities or institutions, was assigned with selected publications provided by the teachers concerning the specific lessons/topics to be covered during the School. This activity was inspired by the technique of the flipped classroom, whereby students acquire concepts/understanding through personal reading and then the class time is used for discussion [6]. As well as gaining a broad understanding of the main topics, the students were asked to contact each other and to collaborate on the preparation of questions regarding the papers they had read. This approach also aimed to promote interactions between the students and teachers, by encouraging the students to start a discussion once a lesson had ended. Indeed, most of the times, the allotted time for discussion (20 minutes) was not enough to satisfy the students' curiosity and their thirst for knowledge.

To further stimulate active student participation and to gratify the most enthusiastic and talented students, the Junior Faculty introduced a competitive element wherein students judged to be the most focused, asking the most interesting questions, and interacting the most with teachers and colleagues would be acknowledged with Best Student Award, prizes consisting of winner's rosette and a voucher for online shopping. Though a little bit stressful for the students, the prospect of an honour was the incentive that prompted many hesitant young scientists to express their opinions/have their say during discussions. In the Basic Class, those receiving honours were Ambra Natalini with 3rd prize (Sapienza University of Rome), Gabriele Pizzolato 2nd prize (Hunimed, Palermo), Beatrice Rossetini 1st prize (University of Florence) and they were joined on the podium by Cristiana Borrelli 3rd prize (Sapienza University of Rome), Gianni Montaini 2nd prize (University of Florence) and Laura Gornati 1st prize (University of Milano-Bicocca) from the Advanced Class.

Opening the School: the Games of Immunology

The Junior Faculty felt that an icebreaker activity on the first day of the School



Figure 1. The famous Nobel Prize winning scientist for his pioneering work in Dendritic cells the students were asked to name. Photo credit: Zach Veilleux/The Rockefeller University.

would encourage interactions amongst the students, and also help the teachers and organizers to get an idea of the general background and entry level of the participants. Therefore, the Games of Immunology was organized and featured an elimination tournament. First, the students of each class were subdivided by the tutors into small subgroups consisting of 7–9 members who were previously unknown to one another and from different institutions. The first game was “Know your mates”. The tutors let the groups talk for 15 minutes sharing information about themselves and their scientific interests; then, each group was asked to elect a team leader and to choose a team name in a couple of minutes (among the funniest team names were “The Pathogen Boys”, “The complement”, “The alloreactive group” and “The Natural Killers”). It was only at this moment that the team leaders became aware of their task, to put on paper, in 3 minutes, the institutions and the research topics of all their teammates, or at least those which they remembered! Each reply was then verified by asking the students one after the other – it was a nice way for each person to be introduced to the community!

The teams then proceeded with three games testing not only their knowledge but also their readiness, intuition, creativity, empathy, and cooperation. First, a series of scientific riddles, covering immunology topics as well as knowledge of famous scientists; see for instance the image shown in Fig. 1 with the students tasked with naming this famous scientist. These riddles gave some teams a hard time! Then,

a round of “Taboo”, which was just simply the immunology version of the well-known guessing game in which the team leaders had to make their friends (team mates) guess a certain word without using some other “taboo” words (Fig. 2). The final match was between the best teams in each of the two classes. In the “Guillotine” game, each team was tasked with finding a mysterious word that was linked to five other words. What would be your guess for “degranulation, IL-5, nickel, H2, and dermatitis”? Correct . . . allergy!

It was worth noting that the two team leaders in the final of the Games were also recipients of one of the Best Student Awards, suggesting that their skills were even acknowledged by their mates in the first 15-minute game.

Feedback from the students and conclusions

Before the school bell had rung for the last time, the students were asked for the one last thing, it was time to convey their opinions on the School, the teachers and the global organization by expressing their appreciation/noting their complaints via a questionnaire. Beyond noted technical issues, helpful suggestions to improve the logistics and lesson schedule were given by the students. Of note, the games were generally appreciated because they created a friendly atmosphere and helped establish productive social contacts between students and with the tutors as well. From the point of view of the organizers and the teachers, the Games represented a way to get to know and evaluate the students in a relaxed, although competitive situation. Furthermore, the Games, followed by other social events, gave rise to close friendships among the participants, and laid the groundwork for future collaborations and hopefully successful immunology careers, perhaps resulting in more prizes such as the Acteria prizes [7] or the Ita-Askonas prize [8].

“The most exciting phrase to hear in science, the one that heralds new discoveries, is not ‘Eureka!’ (I’ve found it!), but ‘That’s funny. . . .’”

(Isaac Asimov)

GAME 3

CLASS: Basic

GROUP 1

GROUP NAME: _____

WORD TO GUESS: Perforin	WORD TO GUESS: MHC	WORD TO GUESS: Bone marrow
TABOO WORDS: NK CD8 Killing	TABOO WORDS: Antigen presentation APC Class I and Class II	TABOO WORDS: Hematopoiesis B cells Development
WORD TO GUESS: Hepatitis	WORD TO GUESS: MicroRNA	WORD TO GUESS: Autophagy
TABOO WORDS: Liver HCV/HBV Steatosis	TABOO WORDS: Dicer Nucleic Acid Silencing	TABOO WORDS: Beclin Autophagosome Starvation
WORD TO GUESS: Natural Killer (NK)	WORD TO GUESS: Tonsil	WORD TO GUESS: Golgi apparatus
TABOO WORDS: Killing Receptor Degranulation	TABOO WORDS: Mouth Lymphoid tissue Adenoids	TABOO WORDS: Organelle Brefeldin/Monensin Vesicle
WORD TO GUESS: TNF-alpha	WORD TO GUESS: Eosinophils	WORD TO GUESS: Chromosome
TABOO WORDS: Infliximab/etanercept Macrophage Cytokine	TABOO WORDS: Parasite Type-2/Th2 Granulocyte	TABOO WORDS: DNA Chromatin Mitosis/Meiosis

FINAL SCORE: _____

Figure 2. The immunology version of the game “Taboo” as played by the students.

The SIICA Junior Faculty,
Barbara Cassani¹, Roberta Castriconi²,
Alessio Mazzoni³, Silvia Piconese⁴
and Giuseppe Sciumè⁵

- ¹ IRGB-CNR and Humanitas Clinical and Research Center in Rozzano, Milan, Italy
- ² Department of Experimental Medicine and CEBR, University of Genoa, Italy
- ³ Department of Experimental and Clinical Medicine, University of Florence, Italy
- ⁴ Department of Internal Medicine and Medical Specialties, Sapienza, University of Rome, Italy/Istituto Pasteur Italia-Fondazione Cenci Bolognetti, Rome, Italy
- ⁵ Department of Molecular Medicine, Sapienza, University of Rome, Laboratory affiliated to Istituto Pasteur Italia-Fondazione Cenci Bolognetti, Rome, Italy

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