

# Report of the Expert Panel on the Reaccreditation of the University Postgraduate (Doctoral) Programme Translational research in biomedicine - TRIBE of The School of Medicine University of Split

Date of the visit: December 7th, 2016

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# INTRODUCTION

The Expert Panel appointed by the Agency for Science and Higher Education (ASHE) created this Report on the re-accreditation of the university postgraduate (doctoral) programme in *Translational research in biomedicine - TRIBE* of The School of Medicine, University of Split on the basis of the Self-Evaluation Report of the programmes, other documentation submitted and a visit to The School of Medicine, University of Split.

The Agency for Science and Higher Education (ASHE), a public body listed in EQAR (European Quality Assurance Register for Higher Education) and a full member of ENQA (European Association for Quality Assurance in Higher Education), re-accredits higher education institutions (hereinafter: HEIs) and their study programmes in line with the Act on Quality Assurance in Science and Higher Education (Official Gazette 45/09) and the Ordinance on the Content of a Licence and Conditions for Issuing a Licence for Performing Higher Education Activity, Carrying out a Study Programme and Re-Accreditation of Higher Education Institutions (OG 24/10). In this procedure parts of activities of higher education institutions and university postgraduate study programmes are re-accredited. Expert Panel is appointed by the Agency's Accreditation Council, an independent expert body, to carry out independent evaluation of post-graduate university study programmes. The Report contains the following elements:

- Short description of the study programme,
- The recommendation of the Expert Panel to the Agency's Accreditation Council,
- Recommendations for institutional improvement and measures to be implemented in the following period (and checked within a follow-up procedure),
- A brief analysis of the institutional advantages and disadvantages,
- A list of good practices found at the institution,
- Conclusions on compliance with the prescribed conditions of delivery of a study programme,
- Conclusions on compliance with the criteria for quality assessment.

# Members of the Expert Panel:

- 1. Prof. Michael Drinnen, Newcastle University/Freeman Hospital, UK
- 2. Prof. Albert Selva O'Callaghan, Autonomous University of Barcelona/ Hospital Universitari General Vall d'Hebron, Spain
- 3. Prof. Gernot Riedel, Aberdeen University, UK
- 4. Arturo Moncada Torres, doctoral student, KU Leuven, Belgium
- 5. Dr. Senthil.Kaniyappan, postdoctoral researcher, Max Planck Institute of Metabolism Research and DZNE (German Centre for Neurodegenerative Diseases), Germany

- 6. Dr. Patrycja Kozik, Group Leader, MRC Laboratory of Molecular Biology, Cambridge Biomedical Campus, Cambridge University, UK
- 7. Prof. Peter Hylands, King's College London, UK
- 8. Prof. Gonzalo Herradón, University CEU San Pablo, Spain
- 9. Marcin Ciszewski, doctoral student, Medical University of Łódź, Poland
- 10. Prof. Gábor Gerber, Semmelweis University, Hungary
- 11. Prof. Robert Allaker, Barts and The London School of Medicine and Dentistry, Queen Mary University of London, UK
- 12. Prof. Pedro Sousa Gomes, University of Porto, Portugal
- 13. Prof. Daniel W Lambert, University of Sheffield, UK
- 14. Prof. Zdenek Broukal, Charles University, Czech Republic
- 15. Nemanja Sarić, doctoral student, King's College London, UK
- 16. Prof. Suzanne Held, University of Bristol, UK
- 17. Prof. David Sargan, University of Cambridge, UK
- 18. Vitalina Drobnytska, doctoral student, University of Greenwich, UK.

The School of Medicine, University of Split was visited by the following Expert Panel members:

- Prof. Michael Drinnen, Newcastle University/Freeman Hospital, UK
- Prof. Gernot Riedel, Aberdeen University, UK
- Dr. Patrycja Kozik, Group Leader, MRC Laboratory of Molecular Biology, Cambridge Biomedical Campus, Cambridge University, UK
- Dr. Senthil.Kaniyappan, postdoctoral researcher, Max Planck Institute of Metabolism Research and DZNE-German Centre for Neurodegenerative Diseases, Germany
- Arturo Moncada Torres, doctoral student, KU Leuven, Belgium
- Nemanja Sarić, doctoral student, King's College London, UK
- Marcin Ciszewski, doctoral student, Medical University of Łódź, Poland.

In the analysis of the documentation, site visit and writing of the report the Panel was supported by:

- Emita Blagdan, coordinator, ASHE
- Marina Matešić, coordinator, ASHE
- Đurđica Dragojević, ASHE, interpreter at the site visit, translator of the Report, ASHE.

During the visit to the Institution the Expert Panel held meetings with the representatives of the following groups:

- Management
- Study programme coordinators

- Doctoral candidates
- Teachers and supervisors
- External stakeholders
- Alumni.

The Expert Panel also had a tour of the library, IT rooms, student register desk and the classrooms.

# SHORT DESCRIPTION OF THE STUDY PROGRAMME

Name of the study programme contained in the licence:

Postgraduate University Programme in Translational research in biomedicine - TRIBE

Institution providing the programme: University of Split, School of Medicine

Education providers: University of Split School of Medicine

Place of delivery: Split

Scientific area and field: Biomedicine and Healthcare, Basic Medical Sciences

Learning outcomes of the study programme *Postgraduate University Programme in Translational research in biomedicine - TRIBE*:

Program includes outcomes and competencies in accordance with CROQF 8.2. level. To defend the doctoral dissertation, students have to have published at least two research papers in journals indexed in CC or WoS databases, with an impact factor (IF)  $\geq$  1. Students may graduate with having only one article published if their research was primary research published in a journal with IF  $\geq$  4. The average IF of research papers published as part of defended dissertations at the TRIBE postgraduate study program is 4.2, which reflects the high quality of research papers published within doctoral dissertations of the TRIBE students.

Number of doctoral candidates: 71

Number of faculty: 35 Number of mentors: 39

# RECOMMENDATION BY THE EXPERT PANEL TO THE ASHE'S ACCREDITATION COUNCIL

On 7<sup>th</sup> December 2016, an expert panel reviewed the Postgraduate (Doctoral) Programme in Translational Research in Biomedicine – TRIBE.

The panel were overwhelmingly impressed by the quality and ambition of the students, the commitment of the teaching faculty, and the aspirational nature of the programme. While there were some areas to be addressed, the panel were in unanimous agreement that the programme should be considered as *HIGH QUALITY* according to the criteria of ASHE's accreditation council.

Therefore, upon the completion of the re-accreditation procedure and the examination of the materials submitted (Self-Evaluation Report etc.), the visit to the higher education institution and interviews with HEI members in accordance with the visit protocol, the Expert Panel renders its opinion in which it recommends to the Accreditation Council of the Agency the following:

1. **issue a confirmation on compliance** for performing parts of activities (renew the licence) and **label it as 'high quality'**.

A full report on the visit accompanies this introduction, where we identify the areas for improvement, but also note some areas that are particularly commended as exemplars of good practice.

On behalf of the expert committee, I would like to congratulate the TRIBE team and express how much we all enjoyed the visit. I can say for certain that all members of our team learned from the good practices we observed on the visit, and we very much look forward to hearing about the continued success of your programme.

Michael Drinnan

On behalf of the Expert Panel

# ASSESSMENT STRATEGY

In our assessment, we kept in mind the following three broad principles:

- 1. That the programme should aspire towards the best practices of (see below):
  - The Bologna Seminar on "Doctoral Programmes for the European Knowledge Society";
  - CroQF, level 8.2;
  - EU Principles for Innovative Doctoral Training.
- 2. That there should be a common benchmark for scope and quality in PhDs across the EU, in order that qualifications have extrinsic value and can be considered transferrable between member countries.
- 3. That strategic decisions about the programme be made always in the best interests of patients and healthcare across the EU, and the rest of the world. This is in keeping with the research priorities of national agencies such as NICE, as well as the major national and international funding bodies.

## The Bologna Seminar on "Doctoral Programmes for the European Knowledge Society"

- i. The core component of doctoral training is the advancement of knowledge through original research. At the same time it is recognised that doctoral training must increasingly meet the needs of an employment market that is wider than academia.
- ii. Embedding in institutional strategies and policies: universities as institutions need to assume responsibility for ensuring that the doctoral programmes and research training they offer are designed to meet new challenges and include appropriate professional career development opportunities.
- iii. The importance of diversity: the rich diversity of doctoral programmes in Europe including joint doctorates is a strength which has to be underpinned by quality and sound practice.
- iv. Doctoral candidates as early stage researchers: should be recognized as professionals with commensurate rights who make a key contribution to the creation of new knowledge.
- v. The crucial role of supervision and assessment: in respect of individual doctoral candidates, arrangements for supervision and assessment should be based on a transparent contractual framework of shared responsibilities between doctoral candidates, supervisors and the institution (and where appropriate including other partners).
- vi. Achieving critical mass: Doctoral programmes should seek to achieve critical mass and should draw on different types of innovative practice being introduced in universities across Europe, bearing in mind that different solutions may be appropriate to different contexts and in particular across larger and smaller European countries. These range from graduate schools in major universities to international, national and regional collaboration between universities.
- vii. Duration: doctoral programmes should operate within an appropriate time duration (three

to four years full-time as a rule).

viii. The promotion of innovative structures: to meet the challenge of interdisciplinary training and the development of transferable skills.

ix. Increasing mobility: Doctoral programmes should seek to offer geographical as well as interdisciplinary and intersectoral mobility and international collaboration within an integrated framework of cooperation between universities and other partners.

x. Ensuring appropriate funding: the development of quality doctoral programmes and the successful completion by doctoral candidates requires appropriate and sustainable funding.

# CroQF, level 8.2:

Descriptors of learning outcomes for this level are:

**knowledge** - creating and evaluating new facts, concepts, procedures, principles and theories in a field of research that extends the frontier of knowledge;

**cognitive skills** - using advanced, complex, original, highly specialized knowledge, skills, activities and procedures required for developing new knowledge and new methods as well as for integrating different fields;

**practical skills** - creating, evaluating and performing new proposed specialized activities and new methods, instruments, tools and materials;

**social skills** - creating and applying new social and generally acceptable forms of communication and cooperation in interaction with individuals and groups of different affiliations and different cultural and ethnical origin;

**autonomy** - demonstrating personal, professional and ethical authority, managing scientific research activities and a commitment to development of new ideas and/or processes;

**responsibility** - taking ethical and social responsibility for successful execution of research, socially beneficial results and potential social consequences.

# **EU Principles for Innovative Doctoral Training**

#### Research Excellence

Striving for excellent research is fundamental to all doctoral education and from this all other elements flow. Academic standards set via peer review procedures and research environments representing a critical mass are required. The new academic generation should be trained to become creative, critical and autonomous intellectual risk takers, pushing the boundaries of frontier research.

# **Attractive Institutional Environment**

Doctoral candidates should find good working conditions to empower them to become independent researchers taking responsibility at an early stage for the scope, direction and progress of their project. These should include career development opportunities, in line with the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers.

# **Interdisciplinary Research Options**

Doctoral training must be embedded in an open research environment and culture to ensure that any appropriate opportunities for cross-fertilisation between disciplines can foster the necessary breadth and interdisciplinary approach.

# **Exposure to industry and other relevant employment sectors**

The term 'industry' is used in the widest sense, including all fields of future workplaces and public engagement, from industry to business, government, NGO's, charities and cultural institutions (e.g. musea). This can include placements during research training; shared funding; involvement of non-academics from relevant industry in informing/delivering teaching and supervision; promoting financial contribution of the relevant industry to doctoral programmes; fostering alumni networks that can support the candidate (for example mentoring schemes) and the programme, and a wide array of people/technology/knowledge transfer activities.

### **International networking**

Doctoral training should provide opportunities for international networking, i.e. through collaborative research, co-tutelle, dual and joint degrees. Mobility should be encouraged, be it through conferences, short research visits and secondments or longer stays abroad.

## Transferable skills training

"Transferable skills are skills learned in one context (for example research) that are useful in another (for example future employment whether that is in research, business etc). They enable subject- and research-related skills to be applied and developed effectively. Transferable skills may be acquired through training or through work experience". It is essential to ensure that enough researchers have the skills demanded by the knowledge based economy. Examples include communication, teamwork, entrepreneurship, project management, IPR, ethics, standardisation etc.

Business should also be more involved in curricula development and doctoral training so that skills better match industry needs, building on the work of the University Business Forum and the outcomes of the EUA DOC-CAREERS project.6 There are good examples of interdisciplinary approaches in universities bringing together skills ranging from research to financial and business skills and from creativity and design to intercultural skills.

### **Quality Assurance**

The accountability procedures must be established on the research base of doctoral education and for that reason, they should be developed separately from the quality assurance in the first and second cycle. The goal of quality assurance in doctoral education should be to enhance the quality of the research environment as well as promoting transparent and accountable procedures for topics such as admission, supervision, awarding the doctorate degree and career development. It is important to stress that this is not about the quality assurance of the PhD itself rather the process or life cycle, from recruitment to graduation.

The common approach should provide a framework of reference, whilst preserving flexibility and autonomy for institutions and doctoral candidates.

# $oldsymbol{A}$ advantages of the study programme

- 1. Multidisciplinarity. The TRIBE programme is highly multi-disciplinary. The panel were encouraged to meet students and previous graduates from a wide range of disciplines: medicine, but also basic sciences, mathematics & bioinformatics, physiology, psychology, and engineering. Equally, we were impressed by the wide range of inter-disciplinary courses on offer. These were valued by students and alumni alike.
- 2. **Situation.** There was some question over the proper seat for a programme such as TRIBE; the medical school, or the appropriate scientific department (eg. physiology, mathematics, etc).
  - We observe that in Croatia, the majority of PhD graduates with medical training do not stay active as career scientists; this is in part due to the demands of the job, and also because the PhD is mandated for certain senior roles in healthcare. Therefore as basic scientists ourselves on the panel, we are encouraged that the School provides a career route for basic science in healthcare.
- **3. Programme support.** We have become aware of a conflict between PhD study and full-time employment for many Croatian students. The majority of the students and alumni were funded in TRIBE by research awards. They reported to us that they were able to commit the majority of their time to their PhD studies.
- **4. Completion rate**. We commend the team on the PhD completion rate, reported to the panel as 60%. This is comparable with PhD completion rates in other EU member countries, and notably is significantly better than the figure for Croatia as a whole which is below 20%.
- **5. Thesis committee/supervisors.** Thesis committee for the PhD students and supervisors are an asset for the TRIBE program. Good monitoring (done by the course organizers) of the progress of the PhD student and the quality of the supervisors.

# **D** DISADVANTAGES OF THE STUDY PROGRAMME

- 1. **Depth of study in PhD research.** From the theses available to review, it was the panel's overall impression that the scientific breadth and depth of theses was in some cases not comparable with those of our Institutions.
- In the majority of theses, there was a single major theme reported. This is typically more in keeping with an MPhil or (in the UK) MD thesis, approximately two years of full-time research work.

- Some theses were very short, in one case around 40 sides of A4 text. The panel feel it unlikely that this would be considered an adequate synthesis of a 3-year programme of PhD-level work unless the quality was unprecedented.

  This was by no means always the case, and of course it is difficult to judge the scientific quality of a thesis written in an unfamiliar language. Since the students felt they had adequate research time, this is perhaps reflective of the 'average time from admission to doctorate' for these students, which at 31.7 months is probably a year shorter than typical elsewhere. One suspects this estimate is biased because the programme is still relatively young; at the time of writing a student cannot have been 'in the system' for more than 5 years.
- 2. Single mentoring. A proportion of students have only a single PhD mentor. We note that in the majority of cases the relationship works well, particularly because the studentmentor relationship is established before the student can enrol in the program. Nevertheless to give a wider academic perspective, we would prefer that students have two mentors where possible. This is particularly important for a multidisciplinary programme such as TRIBE.
- **3. Duplication of effort.** There is substantial duplication of effort, which is unwise given the *chronic faculty shortage* in resources, to cite the report. In one case (statistics), there are three separate courses delivered by the three programmes.
- **4. Reliance on a few key individuals.** We note that TRIBE depends on a few key individuals who are the heart and soul of the programme. The panel are concerned for their workload, given that by their own admission they act as co-mentors for the entire cohort. The panel are concerned about sustainability of the programme for the future, when those individuals move on.
- 5. Appointment of examiners. It was not absolutely clear to the panel how the team of examiners (proposal/defense committee) was appointed. We later established that it is set by a doctoral programme committee in the medical school. To deliver the benefit to healthcare, we agree that the right way to judge TRIBE students is against health-care outcomes. However in isolated cases, there was some concern that the examiners may not acknowledge the multidisciplinary background of the students, who often are not medical professionals. For example: a student's proposal was rejected for inadequate knowledge of basic physiology which was not the subject of the thesis.

# **GP** EXAMPLES OF GOOD PRACTICE

- 1. **Admission criteria and learning agreements.** Provision of clear admission criteria and learning agreements between the student, supervisor and faculty.
- 2. **Teaching and supervisory expertise.** Use of appropriate external and international expertise to deliver aspects of the programme, with a broad range of compulsory and optional teaching. For example: *Fascination for Statistics*.
- **3. Internationalisation**. We were encouraged that the English language was given equal status to Croatian; students were almost unanimously in favour of writing in English; students were offered the opportunity for international conference travel. Nevertheless the great majority of theses were written in the Croatian language; further comment later.

- **4. Ongoing progress assessment.** We were extremely pleased to see that student, mentors and programme leadership meet every 6 months over a written summary of progress. This is an exemplar of good practice; the students and alumni valued it, even if it is a challenge on the programme resources.
- **5. Novel submission models and value for money.** The panel commend the extremely good value for money offered by the TRIBE programme, relative to other PhD programmes across the EU. This is achieved in part by novel submission models, notably the systematic review.

**NOTE:** We had considerable discussion about the adequacy of a Cochrane systematic review ON ITS OWN as a PhD outcome; we have commented later.

First we acknowledge its value. We agree that it gives excellent training in critical appraisal, experimental design, assessment of bias, some elements of statistics, and scientific writing. We recognise the high impact of these publications.

We also note that many graduates of the programme move into healthcare practice; these skills are enormously important in the development of evidence-based practice and are to the benefit of patient care. In two cases, this PhD model led to researchers who had developed a career interest in meta-analysis; we would consider these to be successes of the programme.

- **6. Reflection on the programme.** The report was supported by detailed metrics for each aspect of the programme, including the future careers of the graduands. Much of this information is available online. We found this immensely useful in assessing the programme, and believe that outcome metrics will be an important tool in the long-term evolution of the programme in an international setting.
- **7. The programme is aspirational.** We were encouraged that all the current cohort of students planned to stay in the medical sciences. Of particular note, the alumni had inspirational stories that gave confidence in these outcomes:
  - One alumnus had enrolled from a previous position as an elementary school teacher, and was now employed as a professor in the University.
  - Another alumnus had created a career in evidence-based dentistry, and now has international collaborations with the Cochrane library.

# $oldsymbol{R}$ recommendations for the improvement of the study programme

- 1. Increase the breadth and/or depth of the PhD programme. For equity with other EU programmes, we feel that some individuals' programmes should have more substance. Typically though not always, we believe a PhD would be expected to have at least two major sub-themes or lines of enquiry that test different skill-sets in the candidate. In the particular case of a Cochrane review, the panel felt that the review should be accompanied by a simple piece of primary research. This for three reasons:
- first, we feel there are core scientific skills that may not be tested thoroughly in a review (forming a hypothesis, designing an experiment).
- second, we agree with the leadership team that a Cochrane review probably represents two years of scholarly activity.

- third, and pragmatically, the broad consensus of the group is that even a good review taken on its own would not be accepted in the majority of Institutions.
- **2. Move towards co-supervision for all students.** We recommend that where possible, students have two supervisors. This is particularly important for multidisciplinary projects, where supervisors should come from the co-disciplines.
- 3. **Review the structure of teaching and course mentorship across the faculty.** We recommend that the faculty review their programme of compulsory and optional teaching courses. We have seen some excellent practice, and regret that this might be spread thinly between two or more very similar offerings. Where possible, similar content should be rationalised into a single course taking the best elements of each donor course.

We also recommend that the faculty considers use where appropriate of Massively Open Online Courses (MOOCs). There are excellent specialist MOOCs available that have been developed using resources that are not available to any but the largest institutions. We recommend them in our own institutions.

In addition, consider whether some programmes need more support for the core activities of mentoring and pastoral care. Clearly this is valued greatly by the students, but at present it does rely on key individuals. This begs questions over sustainability and expansion for the future.

- **4. Review the appointment of proposal and defence panels.** In line with our own institutions, we recommend that panels are appointed by discussion between supervisors and the existing committee. We believe this will make the appointment transparent, and also balanced between basic science and medicine.
  - Where possible, we encourage the team to invite an external examiner from a different country. As with all our institutions, this will be an important part in building the case for comparable quality across all programmes in the EU. Members of the expert panel have agreed to make themselves available as volunteers.
- 5. **Consider adopting and publishing EU-wide quality metrics.** This will help the internationalization efforts. In particular, completion rates are an important metric of PhD quality.

# COMPLIANCE WITH THE PRESCRIBED CONDITIONS FOR THE DELIVERY OF A STUDY PROGRAMME

Minimal legal conditions:	
1. Higher education institution (HEI) is listed in the Register of Scientific	YES
Organisations in the scientific area of the programme, and has a positive	
reaccreditation decision on performing higher education activities and scientific	
activity.	
2. HEI delivers programmes in the two cycles leading to the doctoral programme, i.e.,	
first two cycles in the same area and field/fields (for interdisciplinary programmes),	
and employs a sufficient number of teachers as defined by Article 6 of the Ordinance	YES
on the Content of a Licence and Conditions for Issuing a Licence for Performing Higher	IES
Education Activity, Carrying out a Study Programme and Re-Accreditation of Higher	
Education Institutions (OG 24/10).	
HEI employs a sufficient number of researchers, as defined by Article 7 of the the	
Ordinance on Conditions for Issuing Licence for Scientific Activity, Conditions for Re-	YES
Accreditation of Scientific Organisations and Content of Licence (OG 83/2010).	
3. At least 50% of teaching as expressed in norm-hours is delivered by teachers	YES
employed at the HEI (full-time, elected into scientific-teaching titles).	
4. Student: teacher ratio at the HEI is below 30:1.	YES
5. HEI ensures that doctoral theses are public.	YES
6. HEI launches the procedure of revoking the academic title if it is determined that it	
has been attained contrary to the conditions stipulated for its attainment, by severe	
violation of the studying rules or based on a doctoral thesis (dissertation) that has	YES
proved to be a plagiarism or a forgery according to provisions of the statute or other	
enactments.	
Additional/ recommended conditions of the ASHE Accreditation Council for	
passing a positive opinion	
1. HEI (or HEIs in joint programmes) has at least five teachers appointed to scientific-	YES
teaching titles in the field, or fields relevant for the programme involved in its	
delivery.	
2. In the most recent reaccreditation, HEI had the standard Scientific and Professional	YES
Activity marked as at least "partly implemented" (3).	
3. The doctoral programme is aligned with the HEI's research strategy.	YES
4. The candidate : supervisor ratio at the HEI is not above 3:1.	YES
5. All supervisors meet the following conditions:	YES
a) PhD, elected into a scientific title, holds a scientific or a scientific-teaching position	
and/or has at least two years of postdoctoral research experience;	

publications, participation in scientific conferences and/or projects in the past five	
publications, participation in scientific conferences and/or projects in the past five	
years (table 2, Supervisors and candidates);	
c) confirms feasibility of the draft research plan upon admission of the candidate (or	
submission of the proposal);	
d) ensures the conditions (and funding) necessary to implement the candidate's	
research (in line with the draft research plan) as a research project leader, co-leader,	
participant, collaborator or in other ways;	
e) trained for the role before assuming it (through workshops, co-supervisions etc.);	
f) received a positive opinion of the HEI on previous supervisory work.	
6. All teachers meet the following conditions:	YES
a) holds a scientific or a scientific-teaching position;	
b) active researcher, recognized in the field relevant for the course (table 1,	
Teachers).	
7. The supervisor normally does not participate in the assessment committees.	YES
8. The programme ensures that all candidates spend at least three years doing	YES
independent research (while studying, individually, within or outside courses), which	
includes writing the thesis, publishing, participating in international conferences, field	
work, attending courses relevant for research etc.	
9. For joint programmes and doctoral schools (at the university level):	-
cooperation between HEIs is based on adequate contracts; joint programmes are	
delivered in cooperation with accredited HEIs; the HEI delivers the programme within	
a doctoral school in line with the regulations and ensures good coordination aimed at	
supporting the candidates;	
at least 80% of courses are delivered by teachers employed at HEIs within the	
consortium.	

# **QUALITY ASSESSMENT**

		Quality assessment: "high level of quality" or "improvements are necessary"
1.	RESOURCES: TEACHERS, SUPERVISORS, RESEARCH CAPACITIES AND INFRASTRUCTURE	HQ: "high level of quality" IN: "improvements are necessary" A-advantages D-disadvantages GP-good practice examples R-recommendations for improvements
1.1	. HEI is distinguished by its scientific/ artistic achievements in the discipline in which the doctoral study programme is delivered.	HQ  The report from faculty outlines the improving academic credentials of the faculty since 1987, against a backdrop of limited funding and many competing priorities for the medical professionals.  Last year the school produced approximately 180 publications, and this equates to 3 publications per year per FTE member of staff. We note that this work comes primarily from 'pre-clinical researchers', further reflecting the challenges for medical professionals.
1.2	. The number and workload of teachers involved in the study programme ensure quality doctoral education.	HQ [GP2] Approximately 25% of the programme is delivered by external teachers. These contributions were felt to benefit the programme by bringing appropriate external expertise.  We did however have some concern about the enormous contributions made by a few key individuals. [D4, R3]
1.3	. The teachers are highly qualified researchers who actively engage with the topics they teach, providing a quality doctoral programme.	HQ [GP2] The faculty had good publication records, some being exceptional (notably: Ana Marušić, Ozren Polašek), who averaged 2 publications per week over the past 5 years. We note that these workers were engaged in high-profile international collaborations with many authors. This helps to explain the extraordinary productivity but indicates the international value of the work.  NOTE: TRIBE is a multi-disciplinary programme. We did not have the opportunity to assess the publication records of all the supervisors in other faculties.

# HQ [GP2]

The programme employs a sufficient number of quality supervisors with a number of high quality publications relevant for the programme area and field.

The programme is broadly compliant with good practice. However we note from Annex 2 some exceptions, notably Livia Puljak with 9 students. It is not clear how many of these have now completed the programme, though (perhaps) the 4 students with publication statistics have completed.

1.4. The number of supervisors and their qualifications provide for quality in producing the doctoral thesis.

NOTE: In common with most institutions, the panel assign a shared supervision *pro rata*, e.g. a student with two supervisors allocates 0.5 to each.

Supervisors actively lead and/or participate in international and/or national scientific research projects. Supervisor's performance is also assessed on the basis of the performance of the candidates (and their publications coming out of doctoral research) and their completion rates.

Annex 2 gives detail of supervisor performance; all are active scientifically and approximately one third are leading external research projects.

# HQ [GP4]

1.5. The HEI has developed methods of assessing the qualifications and competencies of teachers and

The programme has established and developed formal mechanisms of assessing and monitoring the qualifications and competencies of teachers and supervisors, based on research excellence.

The leadership team explained clearly how teachers and in particular how mentors are appointed. We reviewed the qualifications of mentors (see: 2.4), and acknowledge that by nature, high-calibre mentors have multiple priorities. We were particularly encouraged by the regular meetings with student and mentor, where any emerging problems should be rectified.

1.6. The HEI has access to high-quality resources for research, as required by the programme discipline.

supervisors.

#### HQ [GP5]

The panel had a short opportunity (30 minutes) to review the research facilities.

		Inevitably the standard of facilities will restrict the areas where the faculty can operate at the forefront of medical science, and the leadership team explained how this led to the strategic decision to encourage new and innovative models of PhD research.
	INTERNAL QUALITY ASSURANCE OF THE PROGRAMME	
2.1.	The HEI has established and accepted effective procedures for proposing, approving and delivering doctoral education. The procedures include identification of scientific/ artistic, cultural, social and economic needs.	HQ [A1, A2] The Dean explained that all Split PhD programmes are subject to the same overarching regulations that include a clinical need aligned with health-care priorities and the local skills and expertise.  The report set down the reasons for establishing the programme, and included an analysis of social, academic, economic or other needs of the community.  These opportunities and challenges were further explored with the course directors. We note in particular the challenges for Croatian students in completing their PhD studies given the many conflicting priorities in healthcare.
2.2.	The programme is aligned with the HEI research mission and vision, i.e. research strategy.	HQ [A1, A2] We had sight of the faculty's research strategy, particularly as laid down in the document: University of Split School of Medicine Research Development Strategy 2014 – 2020. Manifestly, the programme is aligned with the first three goals: G1: Increasing the School's international scientific recognition by increasing the number of excellent scientists employed at the School. G2: Continuous international evaluation of the School's research activities and corresponding development of the institution. G3. Scientific profiling of the School and individual research groups. Goals 4 and 5 relate to the building of a research infrastructure, longer-term ambitions that will follow from a successful research output. We see the first evidence of this.  The Dean and the programme leadership explained in more detail the rationale for the multidisciplinary TRIBE

programme, and how it fitted into the suite of PhDs offered in the faculty. **HQ** [GP4, GP6] We were greatly encouraged by the team's commitment to programme monitoring and review, and commend in particular the publication of meeting minutes and key statistics on the internet for public access. We found these statistics extremely illuminating to place the TRIBE programme in the context of the other programmes in the medical school, and across Croatia. 2.3. The HEI systematically monitors the We discussed with the leadership team the mechanisms in success of the programmes through periodic reviews, and implements place: to review supervisor performance at 6-monthly improvements. intervals; to collect feedback from students and alumni; and to develop the programme as a result. This panel constitutes the first formal international programme review. We commend particularly the team's commitment to follow-up, by engaging with the European Science Foundation career tracking initiative, and look forward to hearing the outcome. We are aware from the alumni and students we met that all alumni remain in science, and all current students plan to do so. HQ [GP6, A4] The documents describing the supervisor performance were available for review. As earlier, we were encouraged by the team's commitment to programme monitoring and review. 2.4. HEI continuously monitors We acknowledge that some countries (USA/Canada as supervisors' performance and has cited) have completion rates and timeframes that are mechanisms for evaluating comparable to TRIBE. supervisors, and, if necessary, changing them and mediating between the Improvements: [R5] We would urge the team to use EU supervisors and the candidates. doctorates as the yardstick, where the outcome statistics are better. For example: https://www.timeshighereducation.com/news/phdcompletion-rates-2013/2006040.article We note from this report that stronger Universities have a better completion rate, and this is therefore an important measure of programme quality.

2.5.	HEI assures academic integrity and freedom.	HQ The HEI has procedures that assure academic integrity (prevent plagiarism and other forms of academic fraud) and freedom of research. The team acknowledge that the detection of plagiarism is an important aspect of academic integrity. While there is no facility for automatic detection of plagiarism, we commend the fact that all theses are deposited online (checked) and the source data are released in some cases. Therefore the data are open to scrutiny from the scientific community.
2.6.	The process of developing and defending the thesis proposal is transparent and objective, and includes a public presentation.	
2.7.	Thesis assessment results from a scientifically sound assessment of an independent committee.	IN [D5, R4] [D1, R1]  The panel had the opportunity to review all theses produced from the TRIBE programme. Comments on the overall quality of theses are provided at the top of the document.  All the documents stated in the description of this criterion were available for review. However, it was not clear how the thesis committees were appointed. Since this is an enormously important part of the PhD process and of the quality control for the programme, we have made recommendations in this area at the top of the document.
2.8.		HQ (GP6) We commend TRIBE for its transparency in presenting all relevant information on the programme website.
2.9.	transparently and in a way that ensures sustainability and further development of doctoral education (ensures that candidates' research is carried out and	An approximate budget was presented alongside the regulations for use of revenue (in Croatian). We make some observations:  - This programme takes the majority of grant income

	- The amount of money concerned is small by any comparable standards. In the past 5 years, the programme's income has been approximately EUR 160 000 from 63 enrolled students.  We must congratulate the team and the faculty on achieving so much with such a small budget. We note that certain types of research are likely impossible with such budget constraints.
2.10. Tuition fees are determined on the basis of transparent criteria (and real costs of studying).	HQ The HEI explained the amount of the tuition fee when discussing the costs of studying. The tuition fee is EUR 2100, which is lower than that for comparable programmes. The rationale for this fee is presented in the documentation, and covers programme expenses with a small surplus.
3. SUPPORT TO DOCTORAL CANDIDATES AND THEIR PROGRESSION	
3.1. The HEI establishes admission quotas with respect to its teaching and supervision capacities.	HQ (GP1) TRIBE addresses this problem in in innovative way, by expecting that a student has a project proposal and appropriate mentor before enrollment. Therefore the mentor for any student reaching the application stage should automatically have met these criteria.  We note and commend the provision of learning agreements between all parties in the TRIBE programme. These documents are to be signed before commencement of study, and lay down the obligations and expectations of the relationships.
3.2. The HEI establishes admission quotas on the basis of scientific/ artistic, cultural, social, economic and other needs.	HQ The leadership team acknowledge there is no such strategy for establishing admission quotas. The leadership team note that since a student may only apply to the programme after their mentor is established, then the number of students is limited by the number and expertise of mentors. To an approximation, this will follow academic trends in the faculty. Of course, this does not necessarily equate to the strategic needs of the Croatian healthcare system.
3.3. The HEI establishes the admission quotas taking into account the funding available to the candidates, that is, on the basis of the absorption potentials of	HQ [D1, R1] The leadership team explained the funding model, and made it clear that the programme operates just beyond the breakeven point; the very modest profit is reinvested in the programme. Given the resource constraints, the leadership

	research projects or other sources of funding.	team have moved towards new models of impactful research that require little or no direct funding; notably, the Cochrane review.  The panel discussed at some length whether this was appropriate at PhD level. The leadership team defended this position robustly, and referred the panel to a paper describing the rationale. We have considered both sides of the argument and made comments thereon.
3.4.	The HEI should pay attention to the number of candidates admitted as to provide each with an advisor (a potential supervisor). From the point of admission to the end of doctoral education, efforts are invested so that each candidate has a sustainable research plan and is able to complete doctoral research successfully.	HQ (A4, GP1) As we have already noted, the TRIBE programme requires that the project and mentor are already in place before a student may apply to the programme. Student and mentor sign a learning agreement, and the research plan is reviewed at 6-monthly progress meetings with student, mentor and the programme leaders present. We imagine this pastoral care is an important factor in explaining the programme's good completion rate.
3.5.	The HEI ensures that interested, talented and highly motivated candidates are recruited internationally.	HQ [GP1] The HEI described the ways in which it ensures that the best prospective applicants learn of opportunities to apply. The programme has clear requirements for entry. In competitive (ie. not self-funded) positions, application is administered through newspapers and a public call on the website, in Croatian and English  We asked our current students and alumni about their plans for the future. We were happy to hear that all alumni have pursued careers in research, and all current students plan to do so. This is particularly encouraging for the future of the medical sciences, since we note that the majority of medically trained graduates do not pursue a long-term career in research. (A1, GP7)
3.6.	The selection process is public and based on choosing the best applicants.	HQ [GP7] An interview with the applicant is a compulsory part of the selection procedure. See also the response to previous point.
3.7.	The HEI ensures that the selection procedure is transparent and in line with published criteria, and that there is a transparent complaints procedure.	HQ The HEI ensures that the selection is clear and that applicants have a right to complain. The selection procedure is documented and the list of admitted applicants is public. There is a time limit for complaints and responses to

	complaints. The applicants who were not admitted have a right to review the strengths and weaknesses of their application and, possibly, receive guidelines to improve their research plans.
	See also the response to previous points. In keeping with other elements of the programme, the enrolled students are named on the website. Therefore in principle, an unhappy applicant would know some information about who had been appointed in their place.
	NOTE: Some procedures might benefit from further documentation to bring them in line with the criteria being assessed. For example: while article 29 of the regulations describes the applicants' right to appeal, it does not define the appeals procedure.
3.8. There is a possibility to recognize applicants' and candidates' prior learning.	HQ The right to accreditation of prior learning is built into the programme. The HEI has established a quality procedure for recognizing prior learning and achievements relevant for the doctoral programme, e.g. recognition of ECTS from a master or another doctoral programme, publications etc., as well as non-formal and informal learning. The procedure is launched upon applicant's request, and based on clear criteria/ procedures.
	We are aware that students have made use of this opportunity in the past.
	HQ (GP1) See response to point 3.4.
3.9. Candidates' rights and obligations are defined in relevant HEI regulations and a contract on studying that provides for a high level of supervisory and institutional support to the candidates.	The HEI has a contract on studying which is signed by each candidate. Therefore we agree that a part of the ordinance (or some other kind of quality assurance procedure) describes candidates' rights and obligations in detail. Candidates are informed on all of their rights and obligations upon admission, and we were encouraged to see the learning agreements between student, supervisor and faculty in the report.
3.10. There are institutional support mechanisms for candidates' successful progression.	HQ (GP4) The report gave appropriate detail on the institutional support offered to TRIBE students, and the mechanisms in

place to make sure support is offered. This was one of the major areas we explored with students and alumni. It was identified as a major reason for them choosing this programme. See also response to 3.4.

Current students and alumni noted and valued this opportunity to present their work at international meetings. **(GP3)** 

Regarding the number of candidates whose research was directly funded by the institution, 14/17 students graduated to date were funded by the institution. [A3]

#### 4. PROGRAMME AND OUTCOMES

### IN [A3, D1]

"The quality is assessed on the basis of the programme as it is delivered to the panel". The team gave a particularly helpful and comprehensive response to this point, both in the report and in person.

From reviewing the programme specification and from speaking to the programme leaders, students and alumni we believe the candidates are able to spend the majority of their time on their research project.

4.1. The content and quality of the doctoral programme are aligned with internationally recognized standards.

We note though that at the time of writing, the mean time from registration to degree award is less than 32 months. This is not compliant with the 'high quality' criterion. Indeed, we had some concern about the depth and breadth of some of the theses we reviewed. This is expanded in the summary points.

We were encouraged by the range of compulsory and optional course content available. The panel had the opportunity to review some of the course materials, and was impressed by the same.

Improvements [D3, R3]: We learned that there was some duplication of courses across the faculty. This seems unfortunate given the resource limitations, and is an area for rationalisation.

The panel feel that best practice would be to have two supervisors for each student, and we have recommended accordingly. [D2, R2]

In regards to comparability of thesis formats and assessment committees, we had a minor concern in this area, with the potential that the multidisciplinary nature of the programme would not be fully recognised. In line with other HEIs, we recommend that the examiners are appointed after consultation with the supervisory team. **[D5, R4]** 

In regard to comparability with international HEIs in complying with national and international professional standards; to follow on from the previous point, we would encourage that a proportion of theses are reviewed by international examiners. This will help establish the programme quality in the context of other HEIs across the EU. **[R4]** 

Many aspects of this criterion have been assessed elsewhere and despite our comments, the TRIBE programme is an exemplar for good practice.

### HQ

The panel reviewed the programme syllabus, as set down in Annex 5 of the report and also by discussions with the team, students and alumni. We were satisfied that the programme delivered corresponds closely in content and in spirit to that which was described to us.

4.2. Programme learning outcomes, as well as the learning outcomes of modules and subject units, are aligned with the level 8.2 of the CroQF. They clearly describe the competencies the candidates will develop during the doctoral programme, including the ethical requirements of doing research.

In addition to research competencies, the programme also provides for competencies in research ethics.

The HEI proved that its programme meets the CroQF level 8.2 by quality descriptions of the programme learning outcomes. The reaccreditation panel assessed the following skills and competencies:

- specific research competencies
- project planning and management competencies
- competencies in research methodologies i.e. inference
- reading and writing skills
- teaching and assessment skills;
- competence in demonstrating individual professional and ethical authority;
- readiness to accept ethical and social responsibility for performing research successfully, delivering socially

useful research results as well as potential social impact, readiness to face new social and economic challenges.

We believe that the work produced by the graduates indicated a high level of research competence in the particular skills being assessed. We had some comments about the breadth of skill demonstrated in some theses, but not major concern.

# [D1, R1]

# IN [D1, R1]

4.3. Programme learning outcomes are logically and clearly connected with teaching contents, as well as the contents included in supervision and research.

We had some concern that the teaching load was too heavy, and might reduce the time and hence quality of the research work.

The students and alumni unequivocally defended the teaching programme. Since they were from very diverse backgrounds and didn't necessarily have prior exposure to medical research methods, they felt that the generic research skills modules in particular were essential.

We note and respect the students' view. Nevertheless, we have some concern that this contributes to an overall reduction in the depth and/or breadth of original research that can be produced in a 3-year timescale.

# HQ

The programme team submitted:

- a sample of theses;
- a sample of candidates' publications (especially highimpact publications coming out of doctoral research);
- a sample of seminar papers, conference presentations etc.

4.4. The doctoral programme ensures the achievement of learning outcomes and competencies aligned with the level 8.2 of the CroQF.

We note again the team's comprehensive response to these criteria; all theses and publications from the TRIBE programme were available for review. On the basis of our review we believe that the work produced by the graduates indicated a high level of research competence in the skills being assessed.

A number of manuscripts, particularly the Cochrane reviews, are published in well-read journals and have the potential for high impact. It is too early to comment on the actual impact according to citation indices.

	We do however have some comments about the breadth and depth of skill demonstrated in some theses, and this has been noted in earlier responses.  [D1, R1]
4.5. Teaching methods (and ECTS, if applicable) are appropriate for level 8.2 of the CroQF and assure achievement of clearly defined learning outcomes.	"The quality of teaching methods was assessed, e.g. if courses are delivered <i>ex-cathedra</i> or using methods more appropriate for developing individual research skills, such as colloquia, research, experimental or laboratory work and connected teaching methods, methodological workshops etc., which will be regarded as a high level of quality."  The panel did not have direct exposure to the teaching methods used by the programme, but we did take into account:  - the team's description of the teaching package as set down in the report, which includes a wide range of face-to-face, electronic and self-directed learning;  - the teaching facilities and materials shown to us;  - the views of the faculty, students and alumni we met.  The overall impression was of a well-rounded teaching programme that was valued by the students.
4.6. The programme enables acquisition of general (transferable) skills.	HQ [A1] As with earlier responses, the panel can report on a wide range of transferrable skills development. Tables 10 and 11 in the report are particularly relevant. We re-iterate that this was particularly valued by the students and alumni, because they had diverse backgrounds and in many cases lacked the core skills from other scientific disciplines.
4.7. Teaching content is adapted to the needs of current and future research and candidates' training (individual course plans, generic skills etc.).	The leadership team explained that the elective teaching programme and some parts of the mandatory programme could be tailored to each individual. The students and alumni reaffirmed their support of this policy.  Concerning candidates' individual annual research plans, we had sight of research plans, and explored how these are developed and reviewed by the supervisors and programme leaders. We note from the report that 'The Dissertation Committee defines the context of the exam for the applicants who do not have a biomedical degree'.

	Recommendation for improvement <b>[D5, R4]</b> : An exit exam of this type is not usual practice in our experience. We felt that in certain cases, there was no clear rationale for the content of this examination and have made recommendations in this area.
4.8. The programme ensures quality through international connections and teacher and candidate mobility.	<ul> <li>HQ</li> <li>TRIBE makes a strong case for the success of international connections. Among other features of the programme, we note the following: <ul> <li>English has an equal status with Croatian in the TRIBE programme.</li> <li>The team have invited overseas academics to participate in the teaching and supervision activities.</li> <li>7/63 students enrolled in TRIBE are from overseas. The national average is less than 2%.</li> <li>A number of doctoral research programmes are supported by EU FP7 or H2020 funding.</li> <li>Students are encouraged to publish their research in International journals with good impact factors.</li> </ul> </li> <li>While we were overwhelmingly pleased with the current provision for internationalisation, we have made some suggestions as to how these international collaborations might be developed for the future. [GP3, R4]</li> </ul>

# NOTE: RECOMMENDATIONS OF THE EXPERT PANEL TO THE ASHE'S ACCREDITATION COUNCIL AND QUALITY LABEL

The role of the Expert Panel in the re-accreditation of doctoral study programmes is manifold. The Expert Panel or part of the Expert Panel visiting a higher education institution drafts a report on the basis of a self-evaluation report, the accompanying relevant documentation, and a site visit to HEI. The draft report is adopted by all members of the Cluster Expert Panel, while the president of the Cluster Expert Panel is responsible for coordinating the assessment levels.

The report contains an assessment on whether a doctoral study programme delivered at a higher education institution complies with the prescribed laws and by-laws, as well as any additional/recommended requirements defined by the Agency's Accreditation Council, and whether a higher education institution can obtain a positive, i.e. satisfactory quality assessment according to the criteria set out in this document. Moreover, the Expert Panel must make recommendations for quality improvement.

Based on the assessment of all these elements, the Expert Panel may propose to the Accreditation Council of the Agency to issue either a confirmation on compliance, a letter of expectation for the period up to three (3) years in which period the higher education institution should eliminate the identified deficiencies, or to deny the license.

If the Expert Panel has assessed that a doctoral study programme delivered by a higher education institution does not meet legal and other requirements or that the quality of a study programme is not ensured (i.e. that HEI does not meet additional requirements or recommendations made by the Accreditation Council, or has a very poor quality assessment), they should propose to the Accreditation Council to deny the license.

If the Expert Panel considers that the relevant laws and bylaws have been met by a higher education institution, but that certain elements mentioned above do not meet the quality requirements, while they consider that the identified shortcomings can be corrected within a time frame of three years, they should issue a letter of expectation.

If the Expert Panel considers that all legal and additional/recommended requirements have been met and the quality assessment is satisfactory, i.e. that a study programme fulfils the learning outcomes appropriately defined for that level and scientific area, they may propose the issuance of a certificate and have a HEI commit to quality improvement and reporting to the Agency during the follow-up period.

Finally, if the Expert Panel has, in accordance with the criteria mentioned above, proposed issuing the certificate of compliance and assessed that, in addition to meeting the minimum quality requirements – i.e. the qualification framework level - for a study programme, the programme should be identified as a doctoral programme of a 'high level of quality', the Expert Panel may propose to the Agency's Accreditation Council that such a doctoral study programme be awarded the 'high quality label'. Thus the Agency, with the consent of the Accreditation Council, grants a higher education institution the right to use the label for their academic and promotional purposes.

The 'high quality label' cannot be proposed or awarded to a programme or a higher education institution that does not comply with the requirements laid down by the laws and bylaws mentioned in this document, and any additional requirements recommended by the Accreditation Council. Moreover, the quality assessment awarded to a study programme should reflect a high level of quality inasmuch that

at least half of the sub-criteria in each of the quality assessment criteria are assessed as being of high quality. The Accreditation Council of the Agency issues a final opinion on the label awarded. The content and form of the quality labels shall be prescribed by the Agency in a relevant general act.

The Accreditation Council of the Agency discusses the final report with all recommendations and suggestions, and issues their opinion on the report. Based on a prior opinion of the Accreditation Council, the Agency issues an Accreditation Recommendation to the minister responsible for science and higher education, and upon receipt of the minister's final decision on the outcome of the procedure, awards the 'high quality label" to a higher education institution.