Organisation for Economic Co-operation and Development

ENV/JM/MONO(2018)2

Unclassified **English - Or. English**

12 January 2018

ENVIRONMENT DIRECTORATE
JOINT MEETING OF THE CHEMICALS COMMITTEE AND THE WORKING PARTY ON CHEMICALS, PESTICIDES AND BIOTECHNOLOGY

Cancels & replaces the same document of 11 January 2018

REPORT OF THE OECD WORKSHOP ON INTELLECTUAL PROPERTY ISSUES IN OECD TEST GUIDELINES

Series on Testing and Assessment
No. 278

JT03425405

SERIES ON TESTING AND ASSESSMENT

NO. 278

REPORT OF THE OECD WORKSHOP ON INTELLECTUAL PROPERTY ISSUES IN OECD TEST GUIDELINES

IOMC

INTER-ORGANIZATION PROGRAMME FOR THE SOUND MANAGEMENT OF CHEMICALS

A cooperative agreement among FAO, ILO, UNDP, UNEP, UNIDO, UNITAR, WHO, World Bank and OECD

Environment Directorate
ORGANISATION FOR ECONOMIC COOPERATION AND DEVELOPMENT
Paris 2018

About the OECD

The Organisation for Economic Co-operation and Development (OECD) is an intergovernmental organisation in which representatives of 35 industrialised countries in North and South America, Europe and the Asia and Pacific region, as well as the European Commission, meet to co-ordinate and harmonise policies, discuss issues of mutual concern, and work together to respond to international problems. Most of the OECD's work is carried out by more than 200 specialised committees and working groups composed of member country delegates. Observers from several countries with special status at the OECD, and from interested international organisations, attend many of the OECD's workshops and other meetings. Committees and working groups are served by the OECD Secretariat, located in Paris, France, which is organised into directorates and divisions.

The Environment, Health and Safety Division publishes free-of-charge documents in eleven different series: **Testing and Assessment**; **Good Laboratory Practice and Compliance Monitoring**; **Pesticides**; **Biocides**; **Risk Management**; **Harmonisation of Regulatory Oversight in Biotechnology**; **Safety of Novel Foods and Feeds; Chemical Accidents; Pollutant Release and Transfer Registers; Emission Scenario Documents;** and **Safety of Manufactured Nanomaterials.** More information about the Environment, Health and Safety Programme and EHS publications is available on the OECD's World Wide Web site (www.oecd.org/chemicalsafety/).

This publication was developed in the IOMC context. The contents do not necessarily reflect the views or stated policies of individual IOMC Participating Organizations.

The Inter-Organisation Programme for the Sound Management of Chemicals (IOMC) was established in 1995 following recommendations made by the 1992 UN Conference on Environment and Development to strengthen co-operation and increase international co-ordination in the field of chemical safety. The Participating Organisations are FAO, ILO, UNDP, UNEP, UNIDO, UNITAR, WHO, World Bank and OECD. The purpose of the IOMC is to promote co-ordination of the policies and activities pursued by the Participating Organisations, jointly or separately, to achieve the sound management of chemicals in relation to human health and the environment.

This publication is available electronically, at no charge.

Also published in the Testing and Assessment link

For this and many other Environment, Health and Safety publications, consult the OECD's World Wide Web site (www.oecd.org/chemicalsafety/)

or contact:

OECD Environment Directorate,
Environment, Health and Safety Division
2 rue André-Pascal
75775 Paris Cedex 16
France

Fax: (33-1) 44 30 61 80

E-mail: ehscont@oecd.org

FOREWORD

In September 2017, the OECD convened a workshop inviting experts in intellectual property, regulatory standards, and innovative test methods for chemical safety testing to present and discuss issues associated with the availability, distribution means and transparent access to protected elements in OECD Test Guidelines (TGs).

OECD TGs are regulatory standards, harmonised across countries and used in national chemical regulations for the generation of safety data for human health and environmental protection. The TGs underpin the OECD Council Decision on the Mutual Acceptance of Data (MAD), which guarantees that data generated following an OECD TG and Good Laboratory Practice are accepted in all member countries and countries adhering to the MAD system, thus minimising duplicative testing, which is resource-intensive. For this system to continue functioning, it is important that laboratories can get easy access to test methods and their components, as described in OECD TGs.

With innovation and progress in techniques, an increasing number of findings and tools are protected by various means, potentially impeding easy access to innovative solutions for testing chemicals. The workshop offered an opportunity for experts in intellectual property to share ideas and their experience in various areas where similar issues have been addressed.

This publication summarises the presentations and discussions held, and recommendations for further work in this area for the OECD Test Guidelines Programme. This report is published under the responsibility of the Joint Meeting of the Chemicals Committee and Working Party on Chemicals, Pesticides and Biotechnology.

REPORT OF THE OECD WORKSHOP ON INTELLECTUAL PROPERTY (IP) ISSUES IN OECD TEST GUIDELINES

SETTING THE SCENE

1. The OECD has a key role in standardising methodologies for hazard testing and assessment and promoting best practices for the safe use of chemicals and the protection of human health and the environment. Importantly, there are economic benefits for countries and industry in using harmonised methods for the safety testing of chemicals, through the OECD Mutual Acceptance of Data system.

2. Since 1981, the OECD has been developing OECD Guidelines for the Testing of Chemicals, a unique tool for assessing the potential effects of chemicals on human health and the environment. Over 160 harmonised test methods have been developed for determining physical and chemical properties, effects on human health and wildlife, environmental fate, biocides efficacy and pesticide residue chemistry. Accepted internationally as standard methods for safety testing, the Guidelines are instruments for professionals in industry, academia and governments involved in the testing and assessment of chemicals. Their demonstrated validity and their accessibility are keys to their acceptance and use by authorities in member countries.

3. In the last two decades, animal welfare considerations have received much attention from the public and the need to replace, reduce and refine animal testing for regulatory purposes has become stronger. Alternative methods have emerged from scientific and technical progress, and have progressively gained regulatory acceptance. Alternative methods are the result of innovation and often contain protected elements. Protection of intellectual property and the ability to create value are important drivers of innovation. To continue benefitting from innovation for the development of alternatives, while ensuring their broad availability, the OECD Test Guidelines Programme needs to define principles and acceptable best practice for up taking innovative methods.

4. Ten years ago, OECD started to put tools in place to avoid market monopoly as far as possible, to avoid abusive situations and to maintain transparency in OECD Test Guidelines containing IP elements. As a result, the concept of Performance Based Test Guideline; the development of an OECD Material Transfer Agreement (MTA) template, the requirement to provide information related to the IP elements in a test method from the submission of a new project to the Test Guideline work plan have been implemented. However, in 2016 and 2017, the Working Group of the National Coordinators of the Test Guidelines Programme was faced with concrete issues on the acceptable level of protection of test methods (or elements of) in Test Guidelines and on the distribution means and conditions for obtaining protected methods (or elements of). In particular, questions about method developers being sole provider of protected elements for a period of time and having a dominant position on the market, and the level of acceptability of that situation in a regulatory context formed the core of discussions. It became obvious that the National Coordinators are not sufficiently advised to discuss intellectual property issues in OECD Test Guidelines, and the best way forward was to organise a workshop with experts in the subject matter to collect relevant input for further discussions.

OBJECTIVES OF THE WORKSHOP

5. The specific objectives of the two-day workshop were to:

- Exchange of information on current practice and potential difficulties to overcome, based on current frameworks in countries and experience from method developers;
- Identification of areas needing guidance/guiding principles;
- Identify existing (national/regional) guidance that could be translated in the area of OECD TGs;
- Elaborate draft guiding principles, as appropriate;
- Propose awareness raising activities to promote good practice and identify the target audience.

6. The longer-term goals of the workshop and follow-up discussions with experts on intellectual property issues are:

- To promote access to innovative technologies in OECD TGs;
- To develop and align guiding principles that conform to generally recognised best practice for the use of protected elements in OECD TGs;
- To establish a network of IP experts who can advise the OECD TG Programme.

WORKSHOP DEVELOPMENT

Introduction

7. In May 2017, the Working Group of the National Coordinators of the Test Guidelines Programme was invited to identify national/regional experts, with a specific interest in intellectual property issues in regulatory standards, in licensing practices for the distribution of protected material.

8. The workshop was convened on 21-22 September 2017 at OECD Conference Centre and was attended by twenty-four participants from France, Germany, Japan, Sweden, Switzerland, United Kingdom, the European Commission, BIAC and the OECD Secretariat (see Annex 1). The draft agenda is available in Annex 2.

9. The Secretariat gave a brief overview of the objectives of the workshop; this was followed by an overview of the procedure currently in place to enable multiple methods containing protected methods, to be included in Test Guidelines under common Performance Standards. Then, a presentation of current and emerging issues and questions raised in Test Guidelines was shared with participants (see all presentations in Annex 3). A meeting document was made available to participants, including an overview table of relevant Test Guidelines containing protected elements.

Presentations from participants

10. Following these introductory talks, participants had the opportunity to share the current frameworks applying in their countries and regions, including within the European Commission, Japan, Switzerland and the United Kingdom.

11. A presentation from the representative from the European Commission was given on lessons learnt from the Fair, Reasonable, and Non-Discriminatory (FRAND) terms in licensing agreements for Standard Essential Patents. The presentation from Japan shed the light on the different types of agreements between various key players involved in the protection of elements such as cell lines

used in Test Guidelines. From the presentation from Switzerland, participants learnt about the freedom to operate (FTO) search as a prerequisite for a method developer to ensure non-infringement on existing patents. Research and individual use are identified as exemptions from infringement, but not the commercial use of patented material. It was noted that patent search and FTO require specific expertise, and may be resource intensive; it may be difficult to guarantee in the end that there is no infringement. It was also noted that certain companies may have as a practice to buy the IP assets of inventors in a particular area to ensure themselves a competitive advantage on the market. In regions like the European Union certain laws (i.e. competition law) may result in the obligation to license inventions to prevent anti-competitive behaviours.

12. The United Kingdom presented experience and lessons learnt from public-private partnerships such as the Innovative Medicine Initiative, and factors that determine the success or failure of these collaborative agreements. Terms used (e.g. 'research purpose', 'commercial purpose or use',…) need clarity and should have same meaning for all parties involved; clarity on ownership and IP rights is essential from the start, as well as guaranteeing 'fair and equitable access' to protected material.

13. Presentations from two method developers involved in the development of Test Guidelines were shared with the participants, to illustrate perspective from the business side of innovation. The ensuing discussion reflected potential difficulty to define a template for licensing agreement, given that this is essentially a commercial agreement between two parties; alternatively it might be important for OECD to promote good practice for certain aspects or clause of a licensing agreement that should be followed.

14. The issue of biological endpoints being protected through large scope patents, making the use of Performance Standards (PS) inapplicable was discussed. It was noted that the concept of PS is evolving since we are now moving from the concept of PS for the validation of specific individual methods to other approaches such as Key Event based Test Guidelines or Defined Approaches which may in the future enlarge the application of PS to various technical solutions.

Breakout group sessions

15. Two groups were formed to address a set of questions mentioned on the agenda. Two case studies on terms and conditions sometimes present in licensing agreements were presented to each group, with the intention to support the discussion on what conditions might be acceptable versus what might be considered excessive.

Outcome of the breakout group discussions

Applicability and use of FRAND licensing principles:

- Considered it a good model; transferable to TG, because they set a standard;
- FRAND as inspiration to promote good practices;
- The range- approach of what constitutes "fair" and "reasonable" seems applicable for Test Guidelines; however, the question of what is "fair and reasonable" in terms of price can get complex: would a categorisation of testing facilities / contract research organisations by size help define what is fair licensing fee by business type?
- The FRAND principle of 'non-discriminatory' foresees non-exclusivity of licenses; this supports the non-exclusive distribution of IP necessary to prevent monopolies and to protect smaller companies against contract conditions of big players.
- **but more detailed knowledge on FRAND is necessary.**

If no agreement on price range can OECD ask for transparency on price?

- Difficult for developer to give the price range upfront in the project proposal to OECD; this is business strategic information. Giving a range of a minimum and a maximum price could be possible, but may also disturb negotiations.
- Easier to provide numbers or type of fees (up-front costs or pro rata fees) at the end of the validation process when there is more clarity on the applicability of the method and perspective for its possible use.
- One option would be to have confidential discussion within the Working Group of the National Coordinators of the Test Guidelines Programme to scope out the intentions of the test developer and the type of agreements and expenses to foresee to obtain the protected material.
- The workshop recommended identifying a **remedy to prevent abuse and excessive terms and conditions in the distribution of protected material**: one possibility and powerful instrument to discourage possible abusers is the threat that a method can be invalidated.
- However, OECD cannot get involved into legal actions to determine abuse; it is expected that national laws and jurisprudence would apply instead;
- A better option considered: dialogue on mutual agreed values; if developer enters into contact with OECD he signs up to the organisation's code of practice; it is a moral agreement. These values have to be communicated to the developer.

Need and possibility for a template for license agreement?

- The workshop participants were of the opinion that it is a complicated endeavor to try to cover multiple situations and clauses of a license agreement in a template; the commercial clauses would not be included, hence the value of a template would be weak.
- Good practices for the inclusion of certain clauses and their wording might at best, be addressed in a comprehensive guidance document following the workshop.
- It was noted that an MTA and a license agreement are, generally speaking, both "agreements"; they are both contracts between two parties. While typically an MTA is meant for "transfer of material", while a license is intended for "knowledge transfer", the two types of contracts, depending on the clauses they contain, can resemble one another.

Cases of excessive clauses in a licensing agreement:

- The workshop participants noted that real cases of abuse are normally dealt with under domestic laws on competition, and transnational agreements usually specify the applicable law that prevail; it might be possible to provide examples of black clauses of dominance and competition; OECD could use the industrial standard as a reference; this can be determined by collecting input on the local industrial standard from the member countries.

Conclusion on licensing conditions

The code of conduct would be to define high level principles, and provide guidance and keys in licensing negotiations; in such a code of conduct there should also be functioning rules that:

- no change of business model once TG approval is issued;
- dominance and competition are the challenges for the business side;
- reasonable price might be defined in form of a price range;
- further terms and conditions in the form of examples to follow or to avoid, but cannot be prescriptive;

- non-exclusive licences for a non-discriminatory access to protected material referenced in Test Guidelines.

OVERALL CONCLUSION

16. **An OECD template for license agreements is not the way forward**. It is not for OECD to set the standards for commercial clauses contained in a contract between two parties.

17. **Instead, OECD should promote the shared values of mutual trust** and encourage method developers to engage in good licensing practices for their own reputation and the sustainability of their business. There is a feeling that the majority of developers are not abusers of the Test Guidelines system. The situation should therefore not be complicated for this majority that wants to comply with rules of good practices.

18. **A starting point for the way forward**: **development of a "code of practice" when enganging with the OECD TG programme.** If a developer enters into business with OECD he adheres to a set of expectations even if these are not legally enforceable at the OECD level (no compliance check by OECD in the licensing agreements).

19. This code of conduct and good licensing practices can be based on the FRAND principles, following an in depth analysis of these principles.

20. **In case of abuse,** the Working Group of the National Coordinators of the Test Guidelines Programme may invalidate the test method and cancel a Test Guideline. In case of more abusive situations coming to light in the future, further measures might be considered.

21. **With respect to Freedom-To-Operate (FTOs) search,** the workshop participants were of the opinion that it is in the interest and responsibility of the developer to check the scope of existing patents prior to submitting a proposal for a Test Guideline at OECD. Participants were of the opinion that the method developer bears the consequences of not doing an FTO search.

22. **Submission of information on protected elements** in the project submission (SPSF) to OECD: there was agreement of the workshop participants that the method developer should be required to provide exhaustive information on protected elements of a method. A revision of the SPSF template will be proposed, covering a request to provide information such as the nature and form of protection of IP elements, their anticipated mean of distribution, if agreement documents would be shared with OECD, any search for existing patent(s) performed (e.g. through patent search or Freedom-To-Operate search).

NEXT STEPS

23. The OECD Secretariat indicated that the workshop report will be declassified and published. In parallel, the OECD Secretariat proposed, with the agreement and support of the workshop participants, to submit a project proposal in November 2017 to the Working Group of the National Coordinators of the Test Guidelines Programme for the development of a "Guide and Best Practice for Licensing under the OECD Test Guidelines Programme" (title to be confirmed). This Guide will also include a section on terminology.

24. Oher actions recommended at the workshop include the completion and publication of information contained in the table of the background document for existing Test Guidelines. This table provides information on the nature of protected elements, the type of protection, the means to obtain the elements and form whom, and will also indicate if restrictions exist to availability in OECD countries.

25. Finally, the OECD Secretariat will endeavour to reach out existing expertise in e.g. culture collections, cell banks, professional organisation that may provide expertise and input into future activities.

26. The workshop was closed on Friday 22 September at 13h00.

Annex 1

Participants list for Consultation meeting on intellectual property issues in OECD Test Guidelines

21/9/2017 - 22/9/2017

France

Mme Muriel DERRIEN	*Intellectual Property Advisor*
Emmanuel LEMAZURIER	*INERIS* *INERIS - Direction des Risques Chroniques*
Mr. Grégory LEMKINE	*CEO* *R&D* *Laboratoire Watchfrog*

Germany/Allemagne

Dr. Sebastian DUNST	*Federal Institute for Risk Assessment (BfR)*

Japan/Japon

Dr. Hajime KOJIMA	*Secretary General* *Japanese Center for the Validation of Alternative Methods (JaCVAM), Biological Safety Research Centre (BSRC)* *National Institute of Health Sciences (NIHS)*

Sweden/Suède

Mr. Henrik APPELGREN	*Chief Scientific Officer* *SenzaGen AB*
Dr. Steve SMITH	*European Patent Attorney* *Patents* *Potter Clarkson LLP*
Mr. Mikael WAHLGREN	*Corporate Legal* *SenzaGen AB*

Switzerland/Suisse

Dr. Markus HOFMANN	*Deputy Head REACH & Risk Management section* *Chemical Products Division* *Federal Office of Public Health*
Dr. Andreas NATSCH	*Senior Research Fellow* *In vitro molecular screening*
Ms. Renée HANSMANN	*Leiterin Patentadministration* *Eidgenössisches Institut für Geistiges Eigentum*
Ms. Beatrice STIRNER	*Juristin* *Department Law & International Affairs* *Swiss Federal Institute of Intellectual Property*

United Kingdom/Royaume-Uni

Dr. Jim HOULIHAN	*Intellectual Property Office*
Dr. Carol TREASURE	*Founder & Managing Director* *XCELLR8 Ltd*

EU/UE

Ms. Karolina GUTT-MOSTOWY
Legal Officer
Intellectual Property and Technology Transfer Unit
JRC - Brussels

Dr. Valérie ZUANG
Chemical Safety & Alternative Methods Unit - EURL ECVAM
Joint Research Centre
Institute for Health & Consumer Protection

Business and Industry Advisory Committee (BIAC)/Comité consultatif économique et industriel (BIAC)

Ms. Nicole MARÉCHAL
Senior Legal Counsellor & Governance Officer
Cefic (AISBL)
CEFIC

OECD/OCDE

Ms. Patience BROWNE
Administrator, Test Guidelines
ENV/EHS
OECD

Mme Nathalie DELRUE
Administrator, Test Guidelines
ENV/EHS
OCDE

Mme Anne GOURMELON
Principal Administrator, Test Guidelines
ENV/EHS
OCDE

Mr. Jonathan PASSARO
Legal Advisor
SGE/LEG
OECD

Ms. Christina QUAGLIO
Assistant
ENV/EHS

Ms. Magdalini SACHANA
Administrator, Hazard Assessment
ENV/EHS
OECD

Mr. Richard SIGMAN
Principal Administrator
ENV/EHS
OECD

Annex 2

DRAFT AGENDA

Workshop on intellectual property issues in OECD Test Guidelines

21-22 September 2017, OECD Conference Centre

Starting at 9h00 on 21 September, and ending at 16h00 on 22 September.

THURSDAY 21 SEPTEMBER		
1	9h00-9h15	Welcome and Introduction of participants
2	9h15-9h35	Presentation from OECD on the context and the objectives of the workshop • Quick walk through agenda and background reading and material • Objectives and development of the workshop
3	9h35-10h00	Overview of the situation in existing Test Guidelines (TG) and for on-going projects on the TG programme work plan • Background document • Presentation
4	10h00-12h00	Existing frameworks in countries and regions • United States, by Alice Welch (FDA) • Europe, by Karolina Gutt-Mostowy (DG Joint Research Centre) • Japan, by Hajime Kojima (JaCVAM) • Switzerland, by Beatrice Stirner (IPI) • United Kingdom, by Jim Houlihan (IPO) **Note to presenters**: titles of presentations and slides should be sent to OECD (Anne.Gourmelon@oecd.org and Nathalie.Delrue@oecd.org) by 8 September.
	11h00-11h30	Coffee/tea break

5	11h30-12h30	Experience from key players in dealing with intellectual property protection • Andreas Natsch, test method developer, Givaudan (CH) • Henrik Appelgren, test method developer, Senzagen (SE) • Gregory Lemkine, test method developer, Watchfrog (FR) **Note to presenters**: titles of presentations and slides should be sent to OECD (Anne.Gourmelon@oecd.org and Nathalie.Delrue@oecd.org) by 8 September.
	12h45-14h00	Lunch break
6	14h00-16h30	Break-out groups session Three break-out group sessions will be organised around the following issues and questions to address (2-3 questions/group): • How to develop similar test method when a patented method covers a biological endpoint? • Is the concept of Performance Standards applicable in this context? • What is the practical experience with cases of abuse of monopoly and measures to control this by international law and/or other procedures? • Can the FRAND licensing principles (fair, reasonable and non-discriminatory) used in some sectors apply to test methods containing protected elements? • Can a system of 'reasonable price' maintenance over time for licence fees be ensured? • What criteria would define a 'reasonable price' and 'reasonable terms and conditions' in the case of a license agreement? • What are considered abusive clauses in a license agreement? • Can licencing fees be agreed before the adoption of a Test Guideline? • Is it desirable to develop an OECD template for a license agreement, in the same way as was developed for MTAs?
	16h30-17h00	Coffee/tea break
7	17h00-	Exchange on status of discussions in break-out group sessions

	17h30	

Networking dinner (optional and at own expenses): details will be communicated separately.

FRIDAY 22 SEPTEMBER		
8	9h00-9h30	Report from chairs and rapporteurs of the break-out groups • Rapporteurs from each of the three break-out groups will have about 10 minutes to present the outcome of discussions.
9	10h00-11h00	Discussion • Identification of main issues discussed in the break-out groups and their possible resolution (indicating context : bilateral between developer and user, national or global level); • Identification of needs for guidance and guiding principles and responsible key players for their implementation.
	11h00-11h30	Coffee/tea break
10	11h30-12h30	Discussion (continued) • Identification of additional key players to respond /advise on issues raised; • Do we need to raise awareness on specific issues/practice? Who and how to reach out?
	12h30-14h00	Lunch break
11	14h00-15h30	Next steps and conclusions • Identify the next steps after the workshop; • Workshop conclusions and tour de table of lessons learnt and take home messages.

Annex 3

PRESENTATIONS MADE AT THE WORKSHOP

INTRODUCTION AND OBJECTIVES OF THE WORKSHOP

INTRODUCTION-
WORKSHOP ON
IP ISSUES IN
OECD TEST GUIDELINES

21-22 September 2017

OECD
BETTER POLICIES FOR BETTER LIVES

OECD Context

- OECD TGs are harmonised standards, used by chemical industry and regulatory authorities to generate safety data for the purpose of protecting human health and the environment;
- OECD TGs are broadly used; they are recognised as 'valid' tools; they need to be largely available, accessible; test procedures need to be reproducible and transparent;
- Data generated using TGs benefit from mutual acceptance between countries adhering to the OECD MAD system

Context of the IP workshop

- With increasing innovation and incentives for *in vitro* to replace animal testing, protected elements are at the heart of candidate assays to become OECD TG
- IP protection encompasses
  - Patents
  - Trademarks
  - MTAs
  - Licenses

- Once recognised valid and fulfilling a regulatory need, standards are used, creating market opportunities, but also potential abusive situations (monopolies, lack of transparency, excessive fees) in the absence of guiding principles and promotion of good practice

Goal of the IP workshop

- Promote access to innovative technologies in OECD TGs

- Develop and align guiding principles that conform to generally recognised best practice for the use of protected elements in OECD TGs

- Establish a network of IP experts who can advise the OECD TG Programme

Specific objectives of the IP workshop (1/3)

- Exchange of information on current practice and potential difficulties to overcome
  - Overview presentation from OECD on existing TGs and current projects that cover protected elements (nature of protection, other known information)
  - Presentations from regulatory agencies (FDA,...)
  - Presentations from developers
  - Perspective from national/regional patent offices
  - Perspective from users of test methods containing protected elements

Specific objectives of the IP workshop (2/3)

- Identification of areas needing guidance/guiding principles, e.g.:
  - When is IP protection in breach with OECD principles for TG development (availability, transparency,...)?
  - What should be in place to guarantee broad access to innovative methods?
  - What situations should be avoided (e.g. monopoly situations)? What is considered abusive?
  - What solutions are available to overcome those situations?
  - What are the responsibilities of the key players (developer, patent office, regulatory authorities,...)?

Specific objectives of the IP workshop (3/3)

- Identify existing (national/regional) guidance that could be translated in the area of OECD TGs
- Elaborate draft guiding principles, as appropriate
- Propose awareness raising activities to promote good practice and identify the target audience
- Propose, discuss and agree on follow-up and next steps after the workshop

OVERVIEW AND BACKGROUND

IP ISSUES IN OECD TEST GUIDELINES

OVERVIEW OF THE SITUATION IN TGs

-

INTRODUCTION TO THE BACKGROUND DOCUMENT

21-22 September 2017

OECD BETTER POLICIES FOR BETTER LIVES

Let's go back a few years: 2005-2008

- Increasing development of in vitro Test Guidelines
- Raising awareness on IP issues in Test Guidelines
- The Secretariat looks for ways to:
  - Avoid market monopoly as far as possible
  - Avoid abuse situations
  - Maintain transparency

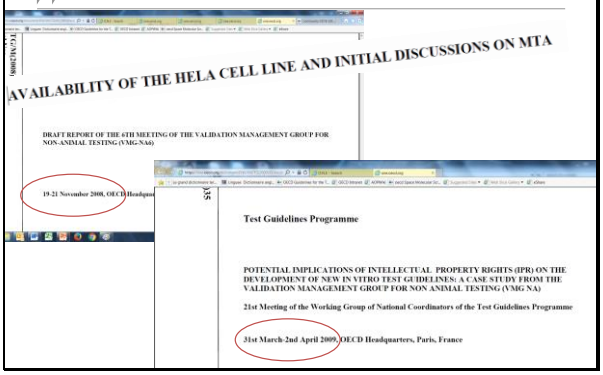
Development of a generic Test Guideline covering several test methods

- Concept of Performance-based Test Guideline (PBTG) emerges
- 2 main objectives:
  - avoid situations of monopoly, **and**
  - avoid too many different Test Guidelines corresponding to very similar test methods,
- Includes a generic **description of the method** and **performance standards**

Performance Standards (PS)

- Intended for the developers, to facilitate validation and assessment of new or modified test methods, similar to the validated reference method(s)
- Include:
  - Essential test method components,
  - Reference substances
  - Expected performance of the method
- Development of PS: agreed as the solution to overcome potential monopoly issues in case of IP elements in a reference test method
  - ☞ This is now challenged with new technologies emerging

From VMG NA 6 (2008) to WNT 2009



AVAILABILITY OF THE HELA CELL LINE AND INITIAL DISCUSSIONS ON MTA

DRAFT REPORT OF THE 6TH MEETING OF THE VALIDATION MANAGEMENT GROUP FOR NON-ANIMAL TESTING (VMG-NA6)

19-21 November 2008, OECD Headquar

SAS

Test Guidelines Programme

POTENTIAL IMPLICATIONS OF INTELLECTUAL PROPERTY RIGHTS (IPR) ON THE DEVELOPMENT OF NEW IN VITRO TEST GUIDELINES: A CASE STUDY FROM THE VALIDATION MANAGEMENT GROUP FOR NON ANIMAL TESTING (VMG NA)

21st Meeting of the Working Group of National Coordinators of the Test Guidelines Programme

31st March-2nd April 2009, OECD Headquarters, Paris, France

Outcome of WNT meeting 2009

- Support to develop an OECD **MTA template** that would then be recommended.
- Agreement to require the **notification of IPR components** at 1st submission of a project proposal for inclusion in Test Guideline workplan (revision of the SPSF* template)

* SPSF: Standard Project Submission Form

2015-2017: the triggers for the organisation of a workshop on IP issues

- WNT 27 (April 2015): Intellectual property in OECD Test Guidelines: initial thought starter for increased clarity
- Meeting on skin sensitisation (Nov 2016)

  "We have seen how quickly an expert group is beyond its knowledge when we came to licencing questions in the Nov2-3 meeting when discussing IL8luc and U-Sens…" Andreas Natsch
- The WNT 29 (April 2017) agreed with the proposal to hold a workshop later in 2017

⇨ Need to engage experts in this area to address unresolved issue and develop guiding principles together

IP elements in test methods: the WNT demands transparency

- The WNT recommends that as much information as possible be presented up front in the SPSF
- Inclusion of a "penalty clause" in the SPSF: in case of erroneous information, projects might be:
  - Re-considered
  - Suspended
  - Cancelled

Transparency required at other levels in Test Guideline development

- GD34 Guidance Document on the Validation and International Acceptance of New or Updated Test Methods for Hazard Assessment:
  - Validation principles, e.g. :*"Intra-test variability, repeatability and reproducibility of the test method within and amongst laboratories should have been demonstrated."*
  - Criteria for regulatory acceptance, e.g. : *"The test should be robust and transferable and allow for standardisation. If highly specialised equipment, materials or expertise are required, efforts should be sought to facilitate transferability."*

⇨Test methods based on elements under trade secret may not be eligible to become OECD TGs

From better understanding to improved transparency

- Getting through the maze of the IP world
- Background document for the workshop:
  - Inventory of Test Guidelines and associated elements with IPR
  - Still a lot of question marks
- And areas where clarification needed
- More harmonised approach in TGs

Refining the background document

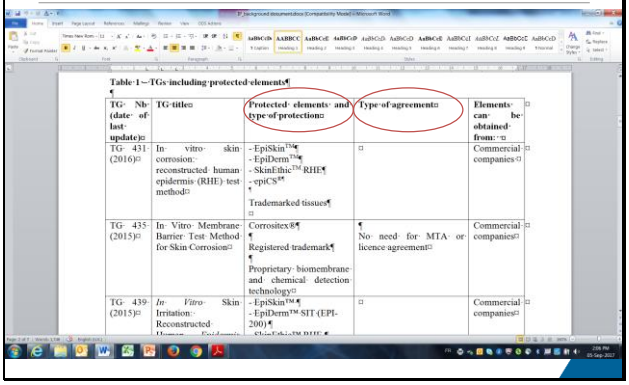


Table 1 – TGs including protected elements

TG (date of last update)	TG title	Protected elements and type of protection	Type of agreement	Elements can be obtained from:
TG 431 (2016)	In vitro skin corrosion: reconstructed human epidermis (RHE) test method	- EpiSkin™ - EpiDerm™ - SkinEthic™ RHE - epiCS® Trademarked tissues		Commercial companies
TG 435 (2015)	In Vitro Membrane Barrier Test Method for Skin Corrosion	Corrositex® Registered trademark Proprietary biomembrane and chemical detection technology	No need for MTA or licence agreement	Commercial companies
TG 439 (2015)	In Vitro Skin Irritation: Reconstructed	- EpiSkin™ - EpiDerm™ SIT (EPI-200)		Commercial companies

Refining the background document

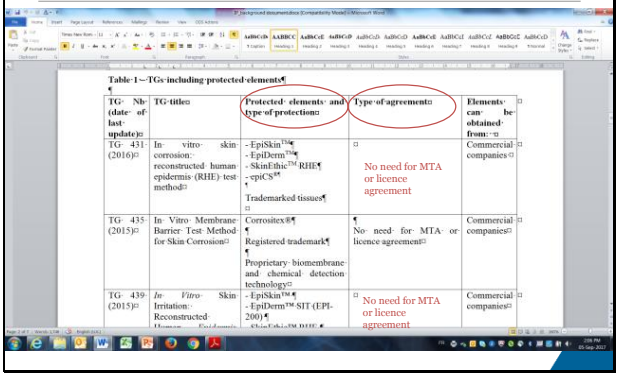
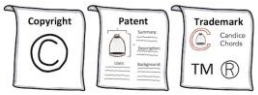


Table 1 – TGs including protected elements

TG (date of last update)	TG title	Protected elements and type of protection	Type of agreement	Elements can be obtained from:
TG 431 (2016)	In vitro skin corrosion: reconstructed human epidermis (RHE) test method	- EpiSkin™ - EpiDerm™ - SkinEthic™ RHE - epiCS® Trademarked tissues	No need for MTA or licence agreement	Commercial companies
TG 435 (2015)	In Vitro Membrane Barrier Test Method for Skin Corrosion	Corrositex® Registered trademark Proprietary biomembrane and chemical detection technology	No need for MTA or licence agreement	Commercial companies
TG 439 (2015)	In Vitro Skin Irritation: Reconstructed	- EpiSkin™ - EpiDerm™ SIT (EPI-200)	No need for MTA or licence agreement	Commercial companies

Types of protection



- Trademarks and/or patents cover various types of elements in Test Guidelines
- A few examples of trademarked elements:
  - Assay name, e.g. U-SENS™
  - Animal, e.g. Big Blue™
  - Tissue, e.g. Episkin™
  - Cell line, e.g. AR-EcoScreen™
  - Cell clone, e.g. ATCC®-CRL-2128™ : clonal cell line isolated from NCIH295R
  - Others e.g. reagents, culture media, biomarkers…

Types of agreement

- Availability of the IPR-protected components – various approaches identified:
  - "Commercially available"
    - Is it always clear that this implies without the need of signed agreement?
  - Requires a Material Transfer Agreement (MTA)
  - Requires a commercial licensing agreement
  - Other?

Questions for the group: Protection and agreements

- Does a patent always imply signature of licensing agreement and vice versa?
- If not, why is it needed in some cases and not in others?
- Can a MTA be signed instead? Has an MTA to be signed instead?
- When and depending on which rules should we go for one or the other type of agreement, if any?
- When no patent, what other types of protection will require the signature of a MTA?
- What is the impact of signing one or the other agreement on the fees / price of a protected element?
- Is a license fee distinct from the price of the sold element?

Questions for the group: OECD and licensing conditions

- Can OECD request licensing conditions?
- Can OECD share licensing conditions (including price conditions) with expert groups during test method development?
- Are the agreed conditions likely to change periodically?

- **Intellectual Property elements in OECD Test Guidelines:**

http://www.oecd.org/chemicalsafety/testing/intellectual-property-in-oecd-test-guidelines.htm

Thank you for your attention!

EU: WHAT CAN WE LEARN FROM FRAND TERMS?

Workshop on Intellectual Property issues in OECD Test Guidelines
21 September 2017
Paris

What can we learn from FRAND terms?

Karolina Gutt-Mostowy
Legal Officer
Central IP Service, DG Joint Research Centre

What can we learn from FRAND terms?

- Who are we?
- JRC's Study on "Licensing Terms of Standard Essential Patents"
- A tension between Standards and Standard Essential Patents
- Selected conclusions of the JRC's study: FRAND as a range
- Examples from the US and EU jurisprudence

Directorate General JOINT RESEARCH CENTRE

As the European Commission's science and knowledge service, the Joint Research Centre's mission is to support EU policies with independent evidence throughout the whole policy cycle.

We support Science based Policy making

JRC's Directorate B Growth & Innovation in Seville focuses on Policy Studies

---

2017 Study prepared by the JRC's Directorate B Growth & Innovation (Seville)

"Licensing Terms of Standard Essential Patents"

as a consistent framework for both the interpretation of FRAND commitments and the definition of FRAND royalties.

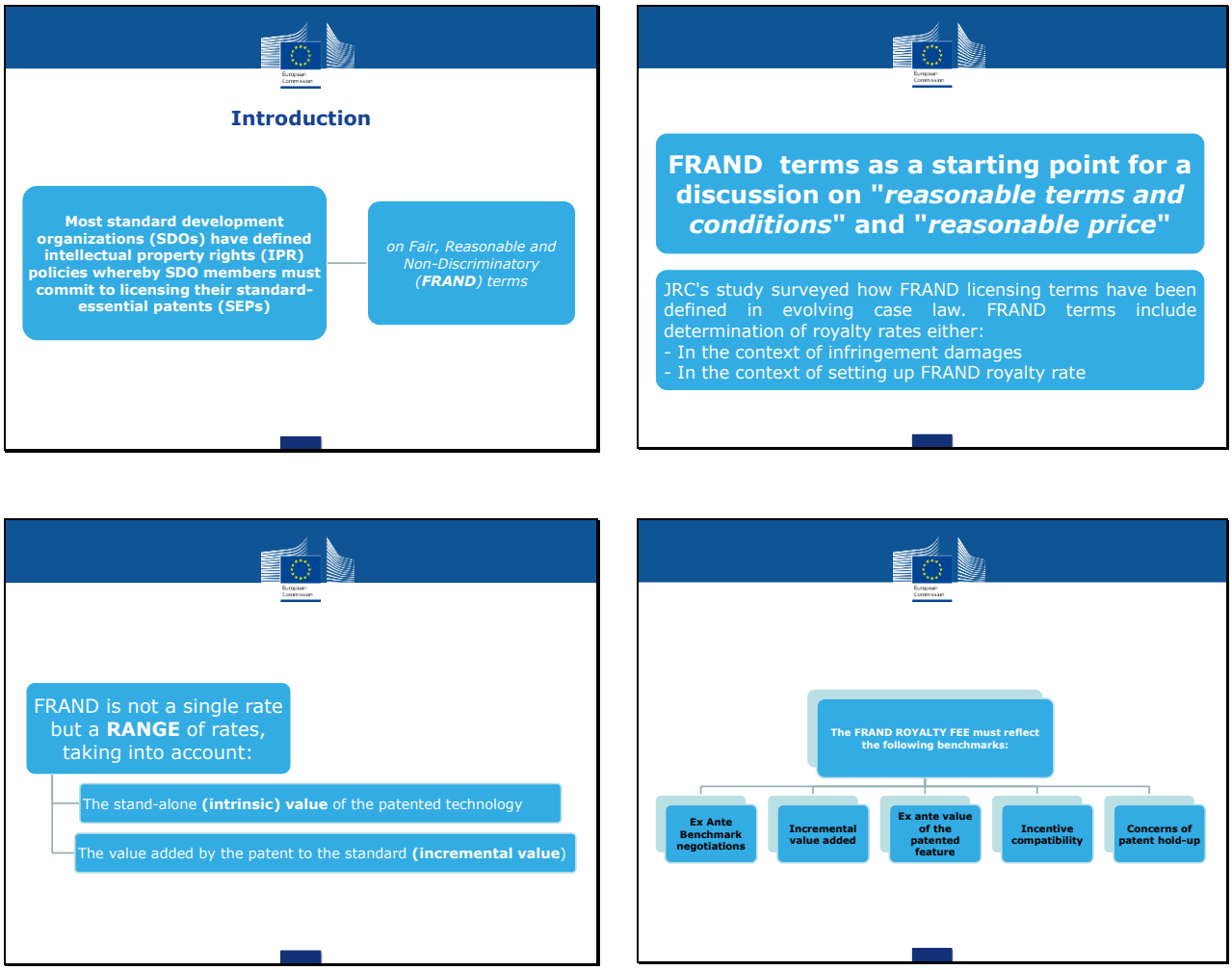
Introduction

A tension between

- Standards – important industry wide, especially where need for interoperability
- Access to standards as an incentive for companies to invent in standardisation
- Exclusive rights conferred by patents may defeat the objective of making the standards available for public use
*Standards that include patents similar to standards that include IP

Introduction

An essential patent or standard-essential patent (SEP) — **must be used to comply with a technical standard**



Ex ante negotiation benchmark: The outcome of a hypothetical ex ante (based on forecasts rather than actual results) bilateral negotiation between the patent owner and the implementer of the standard practicing the patented feature (or auction);
Incremental value added contributed by the patented feature to the product, which is implementing the standard (in particular, the incremental value over the next best alternative);
Ex ante value of the patented feature, i.e., the intrinsic value of the patented feature excluding any additional value resulting from the inclusion of the feature into the standard;
Incentive compatibility: A FRAND royalty rate preserves the incentives to invent, to contribute patented technology to the standard, and to adopt technology standards including SEPs;
FRAND royalties should account for **royalty stacking and concerns of patent hold-up. "Patent holdup" refers to the situation where the owner of a patent requires the payment of more than "reasonable and non-discriminatory" royalties or other fees from implementers of a standard.**
The above benchmarks describe a (potentially wide) FRAND range. Many different rates may be compatible with the ex ante negotiation benchmark and the economic incentives to develop and adopt technology standards. The incremental value added by the patent to the standard and the ex ante value of the patent describe different boundaries of the FRAND range.

Case law examples – the US

IN THE US COURTS SEE (F)RAND RATHER AS A SINGLE RATE NOT A RANGE

Case law examples – the US

Georgia-Pacific factors

- arose from *Georgia-Pacific Corp. v. United States Plywood Corp.*
- an evidentiary list of 15 factors for the assessment of patent damages
- based on the construct of "hypothetical negotiation between a willing licensor and willing licensee on the eve of the infringement", where a "**next best non-infringing alternative**" is available to the willing licensee

Case law examples – the US

Some of the factors for the Georgia-Pacific assessment	Royalties patentee receives for licensing the patent in question
	Rates licensee pays for use of other comparable to the patent in question
	Established profitability of the products made under the patent, its commercial success and its current popularity
	The extent to which the infringer has made use of the invention and the value of such use
	Outcome from hypothetical arm's length negotiation at the time when the infringement began

The **arm's length** principle (ALP) is the condition or the fact that the parties to a transaction are independent and on an equal footing. Such a transaction is known as an "**arm's-length** transaction".

Case law examples – the EU

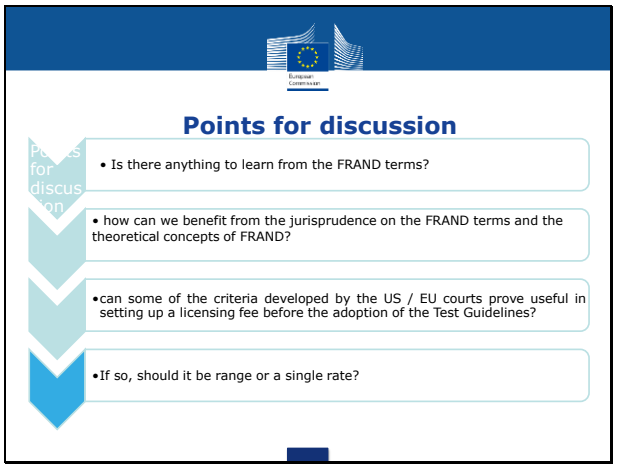
European Courts

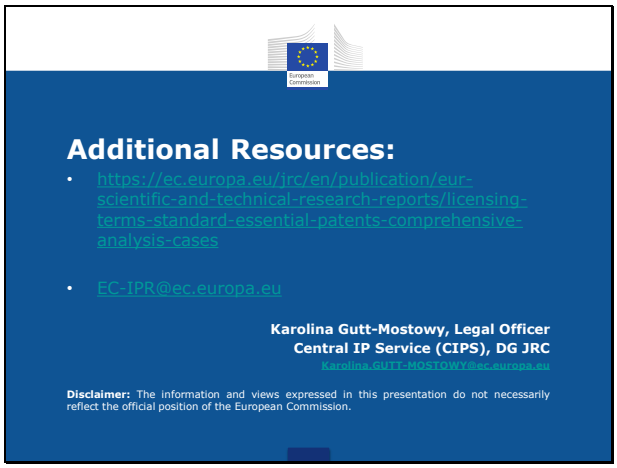
- Do not employ the evidentiary rules and methodologies used in the US
- Focus on defining the conditions under which the conduct of the negotiating parties is incompatible with the FRAND obligations
- No single FRAND rate

Case law examples – the EU

Assessing the FRAND compliance by European Courts
"*conduct of negotiations*"

- Did the SEP owner make a specific written offer for a royalty rate?
- Did the counteroffer of the alleged infringer took place in a timely manner?
- If he refused, did he demonstrate that would have entered into an acceptable deal?


Points for discussion
Points for discussion
• Is there anything to learn from the FRAND terms?
• how can we benefit from the jurisprudence on the FRAND terms and the theoretical concepts of FRAND?
•can some of the criteria developed by the US / EU courts prove useful in setting up a licensing fee before the adoption of the Test Guidelines?
•If so, should it be range or a single rate?


Additional Resources:
• https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/licensing-terms-standard-essential-patents-comprehensive-analysis-cases
• EC-IPR@ec.europa.eu
Karolina Gutt-Mostowy, Legal Officer
Central IP Service (CIPS), DG JRC
Karolina.GUTT-MOSTOWY@ec.europa.eu
Disclaimer: The information and views expressed in this presentation do not necessarily reflect the official position of the European Commission.

EXISTING FRAMEWORKS IN JAPAN

OECD, September, 2017

Existing frameworks in Japan

Hajime Kojima,
National Institute of Health Sciences (NIHS), Japan

1

TGs in correlated in Japan including protected elements

TG Nb (date of last update)	TG title	Protected elements and type of protection	Elements can be obtained from:
TG 439 (2015)	In Vitro Skin Irritation: Reconstructed Human Epidermis Test Method	- EpiSkin™ - EpiDerm™ SIT (EPI-200) - SkinEthic™ RHE - LabCyte EPI-MODEL24 SIT Trademarked tissues	Commercial companies
TG 491 (2015)	Short Time Exposure In Vitro Test Method for Identifying i) Chemicals Inducing Serious Eye Damage and ii) Chemicals Not Requiring Classification for Eye Irritation or Serious Eye Damage	Rabbit cornea cell line SIRC [Statens Seruminstitut Rabbit Cornea] Each cell bank has their own registered cells	Cell Banks
TG 442E (2015)	In Vitro Skin Sensitisation: h-CLAT assay	◦ Human monocytic leukaemia cell line, THP-1 Each cell bank has their own registered cells ◦ Antibodies (FITC Mouse Anti-Human CD86, CD54, or mouse IgG1 antibodies)	Cell Banks Commercial companies
Draft TG 442E (2017)	In Vitro Skin Sensitisation: IL8-Luc assay	Recombinant THP-G8 cell line	Commercial company
TG 455 (2016)	PBTG for STTA in vitro assays to detect estrogen receptor agonists and antagonists - HeLa assay	Stably transfected hERα-HeLa-9903 cell line	Cell banks
TG 458 (2016)	Stably Transfected Human Androgen Receptor Transcriptional Activation Assay for Detection of Androgenic Agonist and Antagonist Activity of Chemicals	AR-EcoScreen™ cell line Trademarked cell line	Cell bank (JCRB)

2

h-CLAT

SHISEIDO GROUP

September 2016
Shiseido Company, Ltd.

Press Release

Skin Sensitization Test "human Cell Line Activation Test (h-CLAT)" Adopted as a OECD Test Guideline

The skin sensitization test called the human Cell Line Activation Test (h-CLAT), jointly developed by Shiseido Company Limited and Kao Corporation, was adopted as the globally recognized official test method, the OECD Test Guideline*1 on July 29th. As the skin sensitization (cutaneous allergic reaction) is a complex mechanism of biological reactions, evaluation with alternative to animal testing had been regarded as difficult. Amid this situation, "h-CLAT" was adopted as the world-first alternative method for skin sensitization test focusing on the in vitro replication of functions in immune cells, the first stage in the course of allergic response. As a result, it is now expected that a combination of "h-CLAT" with other alternative methods, testing other stages of allergic response and already adopted in the Guidelines, will give equal to or more accurate skin sensitization evaluation on chemicals compared to animal testing.

Shiseido's Initiatives and Future Outlook

Shiseido has been engaged in research and development of alternative methods for more than 20 years and abolished animal testing on the cosmetics products and quasi-drugs developed after April, 2013. Also the company solely acquired its patent right regarding the basic technology of "h-CLAT" in 2009, however, with the aim of promoting this technology, the company allows its free use from December 1, 2014 for skin sensitization testing purposes only. Shiseido will continue to pursue this research going forward and will also actively publish the research results to help utilize alternative methods globally.

3

IL-8 Luc assay

Application for cancellation of registration of patent rights per waiver

February 3, 2017

Director-General of the Patent Office, Commissioner of the Patent Office

1. Patent number 5999644
2. Object of registration Cancellation of registration of patent rights to the patent
3. Applicant (patentee)
   - Address 2-1-1 Katahira, Aoba-ku, Sendai, Miyagi, Japan
     Name Tohoku University
   - Address 1-3-1 Kasumigaseki, Chiyoda, Tokyo 100-0013, Japan
     Name National Institute of Advanced Industrial Science and Technology (AIST)
   - Address 2-2-8 Dōjimahama, Kita-ku, Ōsaka-shi, Ōsaka-fu, Japan
     Name Toyobo Co., Ltd.

Wavier (of patent rights)

January 31, 2017

1. Patent number 5999644
2. Title of the Invention Evaluation *system* of immunotoxicity using multi-color light emitting cells

4

HeLa9903

TG455 (2016)

PBTG for STTA in vitro assays to detect estrogen receptor agonists and antagonists - HeLa assay -

Stably transfected hERα-HeLa9903 cell line

Distribute from the JCRB cell bank

JCRB1318:HeLa9903

- MTA is required to obtain from JCRB cell bank
- Additional MTA between user and developer/depositor. This form will be sent to users from Cell Bank upon request of distribution.
- If the HeLa9903 will be used for any commercial purposes, a contract for commercial purposes between user and developer/depositor will be requested.

5

AR-EcoScreen

TG458 (2016)

Stably Transfected Human Androgen Receptor Transcriptional Activation Assay for Detection of Androgenic Agonist Activity of Chemicals

Distribute from the JCRB cell bank

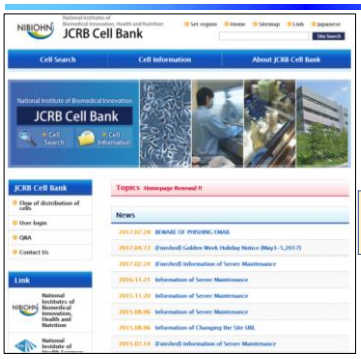
JCRB1328:AR-EcoScreen

Stably express human androgen receptor, reporter gene (androgen response element linked to luciferase), and Renilla luciferase gene.

- MTA is required to obtain from JCRB cell bank
- Additional MTA between user and developer/depositor. This form will be sent to users from Cell Bank upon request of distribution.
- For the usage of AR-EcoScreen in profit-making organization, the developer will request them a fee/year as the cost for maintenance and preservation of AR-EcoScreen cells of his own stocks. (***After April 2018***)

6

JCRB Cell Bank

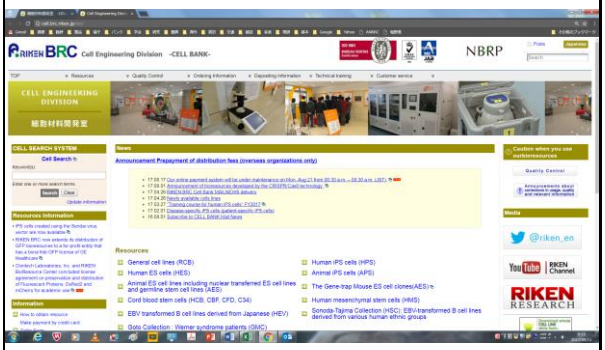


We distribute HeLa9903 (TG455), AR-EcoScreen (TG458), and cell lines for in vitro genotoxicity testing (IVGT) both domestically and internationally.

IVGT: TK6, CHL/IU, CHO-WBL L5178Y TK+/-3.7.2c

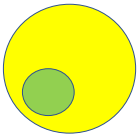
http://cellbank.nibiohn.go.jp/english/

RIKEN Cell Bank



Homepage of RIKEN Cell Bank

Intellectual Property Right of Cell Line



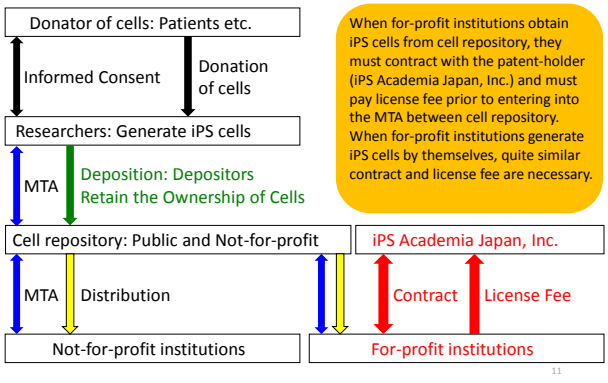
Ownership of a cell line belongs to the scientist who generated it.

There are many cases that intellectual property rights of other organizations are involved in cell lines.
e.g.) Marker genes (GFP etc.)
iPS technology
CRISPR/Cas9 technology

However, intellectual property right(s) involved in the cell line does not belong to the scientist who utilized it for generation of the cell line.

In relation to the cell repositories in Japan:
Cell lines in the cell repositories are basically deposited cell lines. The ownership of deposited cell lines belong to the depositors but not to the cell repositories.
Cell repositories can never provide those cell lines neglecting the intellectual property right(s) involved in the deposited cell lines.

An example of iPS technology



When for-profit institutions obtain iPS cells from cell repository, they must contract with the patent-holder (iPS Academia Japan, Inc.) and must pay license fee prior to entering into the MTA between cell repository.
When for-profit institutions generate iPS cells by themselves, quite similar contract and license fee are necessary.

Showing the present creating the future

National Institute of Advanced Industrial Science and Technology (AIST)

Profile

AIST

AIST is a public research institute. Its origin is the Geological Survey of Japan, the Ministry of Agriculture and Commerce, established in 1882.

In 2001, fifteen research institutions of the Agency of Industrial Science and Technology, MITI, and Weights and Measures Training Institute were integrated into AIST.

Ministry of International Trade and Industry (MITI)
Agency of Industrial Science and Technology

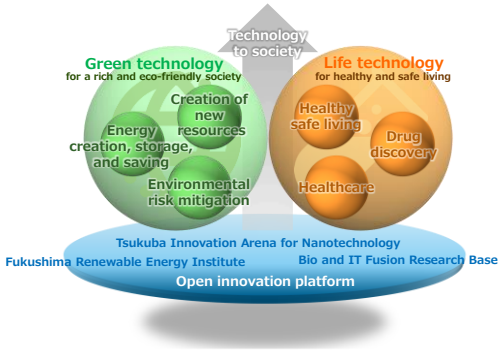
- Hokkaido National Industrial Research Institute
- Tohoku National Industrial Research Institute
- National Institute for Advanced Interdisciplinary Research
- National Research Laboratory of Metrology
- Mechanical Engineering Laboratory
- National Institute of Materials and Chemical Research
- National Institute of Bioscience and Human-Technology
- Electrotechnical Laboratory
- Geological Survey of Japan
- National Institute for Resources and Environment
- National Industrial Research Institute of Nagoya
- Osaka National Research Institute
- Chugoku National Industrial Research Institute
- Shikoku National Industrial Research Institute
- Kyushu National Industrial Research Institute
- Weights and Measures Training Institute (MITI)

National Institute of Advanced Industrial Science and Technology (AIST)

2017/10/11

Building a Sustainable Society

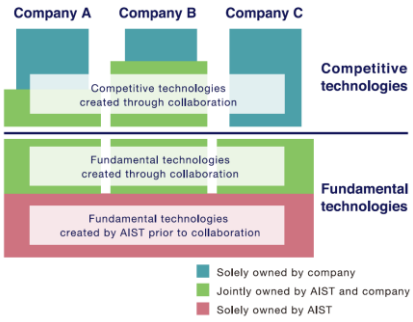
Building a sustainable society



IP management concept in AIST

- Building IP assets for fundamental technologies through own research
- Strengthening and disseminating IP assets through collaboration
- Respecting partners' IP policies for their competitive technologies

Exploitation of jointly owned IP rights gained from research results



National Institute of Advanced Industrial Science And Technology (AIST) establishes Intellectual Property and Standardization Policy to carry out AIST's missions*.

Intellectual Property and Standardization Policy

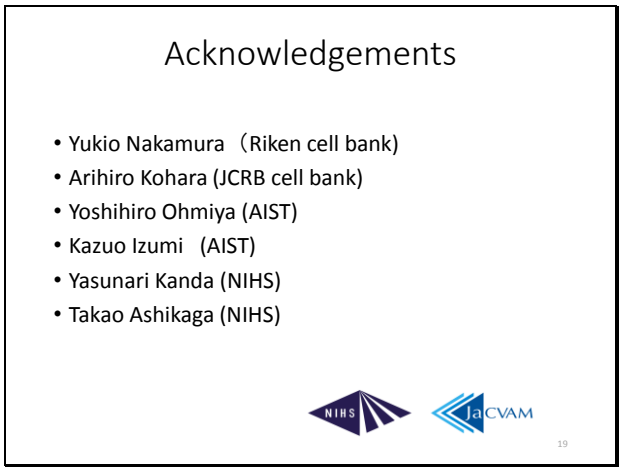
The policy consists of AIST's basic concepts and policies of intellectual property-related and standardization activities.

<Contents>
1. About the policy
2. Basic concepts
3. Policies of intellectual property-related activities
4. Policies of standardization activities

AIST's missions*: The purpose of the National Institute of Advanced Industrial Science and Technology shall be to contribute to the development of the economy and industry and to securing a stable and efficient supply of mineral resources and energy, based on improvements in industrial technology and dissemination of the results thereof, by comprehensively conducting research, development, etc. related to science and technology in mining and industry.
(Act on the National Institute of Advanced Industrial Science and Technology Article 3)

Basic concepts (Excerpt)

- Promotion of collaboration with companies and academia by utilizing intellectual property and realization of the function as an open innovation hub
- Promotion of the standardization as means to disseminate research results to society
- Integrated promotion of AIST's intellectual property-related and standardization activities


Acknowledgements
• Yukio Nakamura（Riken cell bank)
• Arihiro Kohara (JCRB cell bank)
• Yoshihiro Ohmiya (AIST)
• Kazuo Izumi （AIST)
• Yasunari Kanda (NIHS)
• Takao Ashikaga (NIHS)
NIHS
JaCVAM
19

SWITZERLAND: IN RELATION TO TEST GUIDELINES AND PATENTS

IGE | IPI

Eidgenössisches Institut für Geistiges Eigentum
Institut Fédéral de la Propriété Intellectuelle
Istituto Federale della Proprietà Intellettuale
Swiss Federal Institute of Intellectual Property

In re test guidelines and patents

Beatrice Stirner and Renée Hansmann
Swiss Federal Institute of Intellectual Property

IGE | IPI

Outline

- Introduction: patents
- Freedom to operate (FTO)
- Case example: U-Sens
- Options to adress IP questions

IGE | IPI

Introduction: Patents - General

- **Definition:** legal title granting protection for a new technical invention
- **Rights conferred:**
  - *to prevent others* from using the invention

  -> not the right to use the invention
  - property right: can be transferred to third parties (selling, inheriting, licensing, use as security)

IGE | IPI

Introduction: Patents -General

- **Rationale:** social contract
  - encourage innovation, induce investment in innovation
  - In return diclosure of the knowledge to the public (rather than keeping it as a trade secret)
- **Duration:**
  - 20 years for all technical fields;
  - for pharmacuetical products: extension of up to 5 years maximum and additional 6 months for paediatric tests (Europe: supplementary protection certificate and paediatric extension
- **Territoriality of patents**

IGE | IPI

Introduction: Patents – Patentability requirements

- **Art. 1 Swiss PatA, Art. 52 (1) EPC:**

Patents shall be granted for any inventions which are susceptible of industrial application (utility), which are new and which involve an inventive step (non-obvious).

IGE | IPI

Introduction: Patents – Patentability requirements

- **Discovery vs. Invention**
  - **Discovery:** mere finding or ascertaining of something already existing in nature, e.g. contamination with mould kills bacteria
  - **Invention:** if a technical character is associated to this finding, e.g. isolated antibiotic agent; always technical in nature, consisting of a reproducible technical teaching (isolation, purification, characterization, technical effect suggesting a use)
- **Not regarded as invention:** scientific theories, mathematical methods, programs for computers (Art. 52 (2) EPC)

IGE | IPI

Introduction: Patents – Patentability requirements

- **Novelty:** if invention does not form part of the global state of the art (Art. 1 (2) Swiss PatA, Art. 54 (1) EPC)
  - *State of the art*: everything made available to the public, e.g. information in newspapers, books, magazines, journals
  - Single prior art reference defeats novelty if it contains all limitations of claimed invention.

IGE | IPI

Introduction: Patents – Patentability requirements

- **Inventive step:** if invention is not obvious to a person skilled in the art having regard to the state of the art
  - *Person skilled in the art*: Technician knowing the technical field but devoided of imagination or creativity
  - *Obvious*: Something which does not go beyond the normal progress of technology to the PSIA, follows plainly or logically from the prior art
  - EPO/CH: *Problem-solution approach*

IGE | IPI

Introduction: Patents – Patentability requirements

- **Industrial application:** if invention can be made or used in any kind of industry, including agriculture
  - Not requirement that the invention is better than existing products or processes

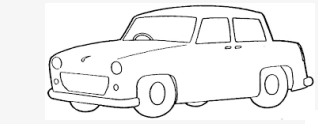
IGE | IPI

Introduction: Patents – Patentability requirements

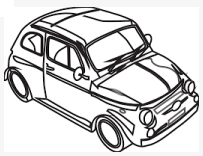
- **Biotechnological and diagnostic inventions**
  - **Basic requirements:**
    - Novelty, Inventive step, Industrial application, sufficiency of disclosure
    - Exceptions to patentability Article 53(a) and (b) and Rule 28 and 29 (1) EPC
  - **Specific for biotechnological inventions**
    - EU Biotech-Directive 98/44/EC
    - Rules 26- 31 EPC
    - Case law

IGE | IPI

Selection invention



Car with 4 wheels



Car with 4 wheels and wipers

IGE | IPI

Scope of protection

- The technical scope of protection of a patent is defined by what is outlined in the claims (to be read in the light of the description and the drawings)
- Whatever falls within the scope of protection will infringe the patend if put on the (protected) market without consent of the pantentee (e.g. license)

IGE | IPI

Scope of Protection

Car with 4 wheels

IGE | IPI

Scope of protection vs selection invention

Car with 4 wheels

Car with 4 wheels and wipers

➢ Scope of protection of one patent may encopass invention of other patents

IGE | IPI

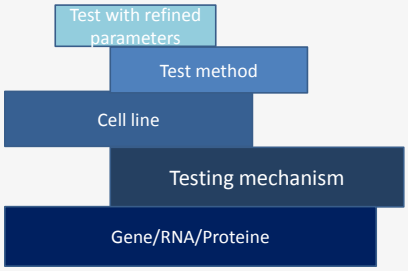
Scope of protection and selection inventions

- different aspects of an invention can be patented
- selection inventions are possible
- Scope of protection of one patent may encopass invention of other patents

➢One product may be covered by several patents, wich may have different owners

IGE | IPI

Patenting Development



IGE | IPI

«Freedom to operate» (FTO)

- Before a product is put on the market, product developer want to ensure that they do not infringe patents from other right holders

➢A freedom to operate search is performed

IGE | IPI

«Freedom to Operate» (FTO)

- Even if the test developer does not have a patent related to the test, someone else might
- Test developper does not automatically know all patents that could be infringed

➢Without a FTO-Search one usually can't be sure that no patent might be infringed

Case example: U-Sens

- …..no known patent on assay…..
  - ➢really?

Case example: U-Sens

WO2009148669 : EP2294412 US2009305276

PD	- 2009-12-10
OPD	- 2008-06-04
PN	- WO2009148669 A1 20091210 DW201001 US2009305276 A1 20091210 DW201001 EP2294412 A1 20110316 DW201120
PA	- (CEET-N) CEETOX INC - (MCKI-I) MCKIM J M
IN	- MCKIM J; MCKIM J M
TI	- Predicting the in vivo skin sensitizing activity of a compound by applying a concentration of a test compound to cultured mammalian cells, measuring the expression level of marker genes, and conducting a computational analysis

Example: U-Sens

WO2012002507 : JP5999644B JPWO2012002507

[Claims]

1. It has two or more reporter genes under control of a separate promoter,
A 1st reporter gene exists under control of a regular expression promoter,
A 2nd reporter gene exists under control of the promoter for immunotoxicity evaluation,
The mammalian cell for the immunotoxicity evaluation formed by introduce|transducing the said reporter gene by a mammalian cell, so that transience or stable expression is possible.

2. The mammalian cell of Claim 1 which has further a 3rd reporter gene under control of an acitivity evaluation object promoter.

3. The mammalian cell of Claim 1 or 2 whose mammalian cell is a Jurkat cell, U937 cell, or THP-1 cell.

Case example: U-Sens

WO2012172370 : US2014220566 EP2721409

Claims
What is claimed is 1. An in vitro method for determining the sensitizing potential of a test compound, comprising the steps of
(a) contacting said test compound with a cell;
(b) determining the presence or a change in the level of expression of one or more marker proteins selected from Table 1, Table 1 (A) Group 1, Table 1 (B) Group 2, Table 1 (C) Group 3 or a combination thereof, in said cell; and
(c) determining the sensitizing potential of said test compound based on said presence or change in level of expression wherein a change in the presence or level of expression of said one or more marker proteins is indicative of said test compound having sensitizing potential.

2. A method according to claim 1 wherein said cell is representative of a cell selected from the group consisting of skin, lung or immune system.

6. A method according to claim 5 wherein said cell line is selected from the group consisting of THP-1, U937 and Mutz-3 cells .

1976 May 15

Int J Cancer. 1976 May 15;17(5):565-77.

Establishment and characterization of a human histiocytic lymphoma cell line (U-937).

Sundström C, Nilsson K.

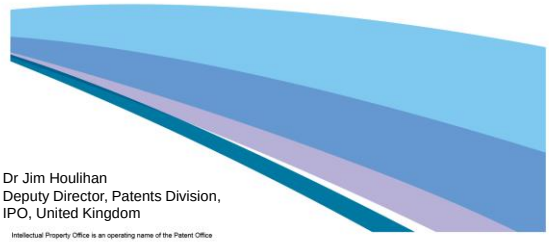
Options to adress IP questions

- **To clarify patent (IP) landscape**: patent search? FTO – clarification (patent attorney)?
  - Open questions: When? Who? Costs? Voluntary/obligatory? …
- **To ensure access to IP rights:** Contractual agreements, e.g. licensing, MTA, non-assertion clauses, etc.
  - Open questions: When? Who? Reasonable terms and conditions? Reasonable fees? …

INTELLECTUAL PROPERTY IN COLLABORATIVE PROGRAMMES – LESSONS LEARNT

Intellectual Property Office

Intellectual Property in Collaborative Programmes - Lessons Learnt



Dr Jim Houlihan
Deputy Director, Patents Division,
IPO, United Kingdom

IP-related Collaborative Research Programmes

- UK Lambert Tool-Kit for industry-university collaborations
- IPO licensing checklist
- EU Innovative Medicines Initiative
- European Research Area Guidelines on Intellectual Property (IP) Management in International Research Collaboration Agreements between European and Non-European Partners

(Reference URLs on final slide)

Lessons from Litigation

IDA Ltd v University of Southampton 2006

"It is all too understandable that one man is likely to overestimate his input at the expense of the others, even where he is fundamentally honest….Disputes about this sort of issue can readily become overheated and prolix....Parties to these disputes should realise.....they can be protracted, very very expensive and emotionally draining....exploitation of the invention will be stultified by the dead hand of unresolved litigation"

Lord Justice Jacob, Court of Appeal, 2006

A national case study
Lambert Tool Kit for University- Business Collaboration

Issue
- IP in research contracts, a significant barrier to collaboration
  - High legal costs
  - Long time to conclude agreements
  - Limited resources (especially SMEs)

Process
- Lambert Working Group comprising >60 members - universities, large and small companies, technology transfer and research organisations etc.
- Inner core group 12; even mix of public and private, one independent lawyer

Products
- Series of model research collaboration agreements
- Decision making guide
- Model Heads of Terms
- Variation agreements (when new party joins a contract)
- Fast track model agreement for Public Health England in response to Ebola crisis

Outcomes
- Raise awareness of IP handling in research contract negotiation
- Speed up and simplify research contract negotiation
- Drive up collaborative research and innovation in UK
- Internationally recognised

Licensing checklist - example categories -

- Parties
- What is being licensed
- Rights granted/restrictions imposed (for each IP item)
- Fees and payment
- IP protection and infringement (indemnities on 3rd party IP?)
- Confidentiality
- Warranties and liabilities
- Other issues (e.g. Term, termination consequences)

Innovative Medicines Initiative (IMI) IP Committee

Issues

- World's biggest public-private partnership (PPP) in the life sciences –IMI "1" 2 Billion Euros
- IP management in drug development, particularly third party access rights and distinction between "research use" and "direct exploitation"
- "*Universities shun Europe's drug initiative - intellectual property rules push researchers away*". Nature News July 2010*

Process

- IPR committee set up to resolve issue. European Federation of Pharmaceutical Industries; Eight member states group representing universities and SMEs; IMI and EU Commission
- UK stakeholder engagement meeting on IPR

IP policy

- Enshrined in EU law (Council regulation(EC) No 73/2008, Article 15)

*http://www.nature.com/news/2010/100713/full/466306b.html

IMI cont.

Stumbling blocks:

(i) "unusual" terms in IP policy, for example "Research Use", "Sideground"

(ii) Scope of common terms - "background" and "foreground"

(iii) Access right framework (licence to use) - different purposes, affiliates etc.

Solution: Guidance notes

(i) Detailed examples of what specific terms mean in practice

(e.g. when cell-line/biomarker "X" is used in project "Y" this means….")

(ii) Elaboration of terms "background" and "foreground"

(iii) Access rights - generally non-exclusive, **Fair and Reasonable**, third party affiliates, time frame etc.

Outcome

- IMI "1" successfully proceeded - 50 projects. Broad UK participation
- IMI2 in progress 3.3 Billon Euros

European Research Area guidelines on IP management in international research collaborations

EU Commission Recommendation 2008 (2008/416/EC) on the management of intellectual property in knowledge transfer activities and Code of Practice for universities and other public research organisations

EU Commission Knowledge Transfer Group
- > 20 member states representatives
- Drafting committee, four MS representatives

Guidance

- Engage all actors early on
- Overriding strategic aims - what organisation is trying to achieve; exploitation expectations
- Cultural issues of partner country
- Partner country's legal framework
- Personnel and partners
- Define terms!

- Identification of background IP
- Ownership or access rights? ("**Fair and Equitable Access" – "IP Recommendation")**
- Subsequent licensing to third parties
- Freedom to operate
- Reciprocal due diligence of partners

Common themes

- Consider a Head of Terms/IP Policy at outset with **all** main actors
  - Agree objectives
  - Agree contributions, particularly background IP
  - Agree compensation/reward for IP/material rights on "fair and reasonable terms"
  - Agree terminology
  - Clarify ownership and access rights
  - licensing principles and third party access rights

"The best forms of knowledge transfer involve human interaction" ***Sir Richard Lambert***

References

- Lambert tool-kit

https://www.gov.uk/guidance/university-and-business-collaboration-agreements-lambert-toolkit

- IPO licensing checklist

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/385819/licensingchecklist.pdf

- European Research Area guidelines on IP management in international research collaborations

https://ec.europa.eu/research/innovation-union/pdf/international_cooperation_guidelines_erac_kt_group.pdf

- Innovative Medicines Initiative - IP framework, policy etc

http://www.imi.europa.eu/

CASE STUDY ON PERFORMANCE STANDARDS AND PROPRIETARY ELEMENTS

Performance standards and proprietary elements –
Case study for OECD 442d
(ARE-Nrf2-luciferase test method)

21.9.2017, A. Natsch, Switzerland

Givaudan

engage your senses

Contents

1. **Guideance document 34: The rationale behind performance standards**
2. **Keratinosens – the test currently in OECD TG 442d**
3. **The history in relation to IP**
4. **Performance standards and the development of me-too method LuSens**
5. **Difference to methods where the Endpoint is IP protected**

Givaudan Confidential and proprietary business information of Givaudan 2

Guideance document 34: The rationale behind performance standards

- **Guidance document 34:** "The OECD currently will not develop Test Guidelines that require the use of a unique instrument or process owned by a patent (in order to **ensure availability and avoid monopoly**) (…) One option (…) would be to include a detailed generic description of the method and provide proper reference to the validated, patented version of the method, **together with a set of performance standards** (17) (…)
- These performance standards, based on validated and accepted test methods, can be used to evaluate the accuracy and reliability of other **analogous test methods** (colloquially referred to as "me-too" tests) that are based on similar scientific principles and **measure or predict the same biological or toxic effect**"
- Performance standards contain three key elements:
- I) Essential Test Method Components
  - Describes method and the **biological effect addressed by the method**
- II) Minimum List of Reference Substances
- III) Defined Reliability and Accuracy Values
  - Expected outcome when testing reference Substances

Givaudan Confidential and proprietary business information of Givaudan 3

Development of KeratinoSens® @ Givaudan

- Skin sensitization / skin allergy is key for cosmetic ingredients and fragrances
- Classically assessed with Local Lymph node assay in mice (OECD TG 429)
- Urgent need to replace it based on cosmetic regulation (ban of animal tests) led to high investments by different companies

- Givaudan started in 2006 to investigate the subject
- Data were always published
- Assay development done in house – early sharing of assay with other labs for validation

TOXICOLOGICAL SCIENCES 102(1), 110–119 (2008)
doi:10.1093/toxsci/kfm259
Advance Access publication October 11, 2007

Skin Sensitizers Induce Antioxidant Response Element Dependent Genes: Application to the *In Vitro* Testing of the Sensitization Potential of Chemicals

Andreas Natsch[1] and Roger Emter
Givaudan Schweiz AG, Ueberlandstrasse 138, CH-8600 Duebendorf, Switzerland

Received August 31, 2007; accepted October 2, 2007

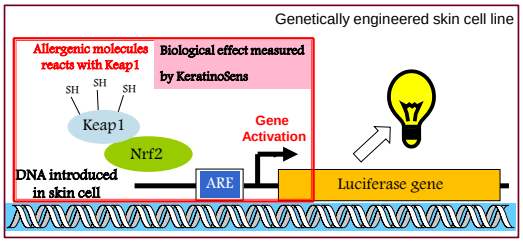
Givaudan

The mechanism: The KeratinoSens® cell line

- The **light-generating gene** from the Firefly is introduced into a skin cell
- A specific '**genetic switch**' activates the gene in presence of allergen

- **Keap1:** «Sensor protein», **activates Nrf2** in presence of allergen
- **Nrf2-protein:** Transcription factor: «**Presses the button**» on ARE
- **ARE element** : «**Genetic switch**»

Luciferase gene from firefly



The history of KS development in relation to IP

- Keap-Nrf2 pathway is a known pathway that reacts to electrophilic chemicals
- Givaudan first group to find that this pathway is quite selectively activated by skin sensitizers
  - Decision **not to patent** this finding in order not to hamper test development and validation
  - **Publication** in Toxicological Science
- Based on this finding KeratinoSens was developped
- Shared with four Laboratories to perform validation study, followed by ECVAM review
- Submission of OECD guideline, jointly by JRC and Swiss federal office of health
- Test trademarked, cells only available from Givaudan
  - Expert group **decided performance standards are needed** due to single source for obtaining cells
  - Only a tool (i.e the cells) has limited access, but not the biological effect (Nrf2-pathway activated by sensitizers), which is not patented

Givaudan Confidential and proprietary business information of Givaudan 6

The history of Nrf2 assay development in relation to IP (cont.)

- Decision to provide cells for commercial testing under MTA
  - One time licence fee 10'000 Euro, includes cells, data evaluation software and consulting
  - Unlimited testing without additional fees
  - Transfer of cells for academic research with no costs
- These conditions apply to any lab globally – availability is guaranteed
- These conditions were communicated to ECVAM and OECD in an official and binding statement
- ECVAM reviewed conditions prior to final validation
- OECD TG office reviewed the MTA and conditions prior to adoption of TG 442d
  - Guideline and Performance standards adopted in 2015

The development of me-too method LuSens

- BASF developed LuSens – similar cell line and very similar protocol
  - Same biological mechanism (Nrf2-dependent luciferase induction)
  - **Since biological mechanism is not IP covered, no IP issue to develop LuSens**
  - Testing of performance standard chemicals and submission of validation study to ECVAM by BASF
- ECVAM recognized LuSens as essentially similar method due to
  - Fulfilling requirements relating to performance standards testing
  - Same biological mechanism / toxic endpoint
- OECD TG 442d currently being updated to contain both KeratinoSens and LuSens protocol (now in commenting round)
- **LuSens is the perfect case where the performance standards principle works**
  - **Unique cell line as a proprietary tool**
  - **Biological effect is IP free – no IP issue when developing a method according to Performance standards**

Other test methods addressing similar endpoint

- Several newer test methods also address Nrf2 endpoint
- These methods cover additional genetic markers evaluated in parallel
- No IP issue relating to Nrf2 genes, as this endpoint is not patented
- The method developpers applied for patent protection for the wider set of genetic markers to be tested
- Thus the **Biological effect** (activation of a specific set of genes) is IP protected in these newer methods

⇒ It is not longer possible to define essential method components in PS which would result in methods which measure the same biological effect

- E.g. If method measures **different genes** not covered by patent – then test measures **different biological effect** and test results could not be viewed as essentially equivalent by regulators.

⇒ In such cases, OECD may need to find another way of working than PS to limit monopoly / guarantee access to the test method (my conclusion)

Thank you

Contact
Andreas Natsch
Head of In vitro Molecular Screening
Fragrances S&T

Phone: +41448242105
Givaudan Suisse SA, 138, Ueberlandstrasse, 8600 Duebendorf, Switzerland

SECOND CASE STUDY FROM SENZAGEN AB

SenzaGen AB

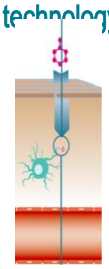
Workshop on IP issues in OECD test guideines
OECD Conference Center, Paris

21-22 September, 2017

Henrik Appelgren, Steve Smith & Mikael Wahlgren

What is the GARD™ technology?

GARD – Genomic Allergen Rapid Detection



- No animals are used
- Based on human cells
- Classification of chemicals
- Potency in the sensitisation reaction
- Part of full risk assesment of chemicals (OECD TGP 4.106)
- Developed at Lund University and spin-off SME SenzaGen

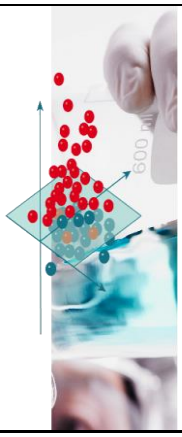
GARD™ assays

OUR ASSAYS

GARDskin™
GARDpotency™

PIPELINE PROJECTS

GARDair™
GARDprotein™
GARDmixtures™



The importance of IP

- Patents are an essential asset for companies like SenzaGen; they provide a *temporary* monopoly for the invention as a reward for sharing innovations
- Without the income-generation value of patents, innovator companies like SenzaGen would not survive (and fewer, if any, new tests would be developed)
- There needs to be balance between protecting investment by innovator companies and enabling end-users to access the assay at an affordable

"Patenting of endpoints"

- Concern expressed about patenting of biomarker itself as an 'endpoint', thus monopolising all tests
- However, it is increasingly difficult, and often impossible, to gain patent proteciton for a gene or natural-occuring protein *per se* (cloning of genes is now largedly deemed routine and obvious)
- GARDskin patent in Europe is limited to the *in vitro* measurement of specific biomarker *combinations* in dendritic cells as a indicator of sensitisation/potency

Requested clause *vs.* an OECD template Licensing agreement

- Domestic legal requirements and differences exist between contract drafting between the civil and common law systems; we promote the issuing of requested clauses instead of the issuing of an OECD template for a licensing agreement.
- Requested clauses will also assist the National coordinators in their guidance of which clauses need to be included in a licensing agreement in order to be deemed acceptable for OECD.
- Requested clauses are also beneficial in view of OECD's aim to promote a broad, long-term and sustainable use of the concerned OECD Guideline.

Requested clauses

Requested clauses should govern:

- Non-granting of any rights to the provided IPR
- Confidentiality
- The license shall be time limited, non-exclusive, non-assignable and non-sublicensable
- Safeguard that the receiver has the right know-how, skill and requested equipment to assure the requested quality standard
- Providers right to any improvements
- Remedies for violation of the contract, *e.g.* suspension, termination, liquidated damages, *etc.*
- Hold harmless indemnity for provider
- Protection of IPR rights

Pricing in a licensing agreement

- The domestic variation in the development costs and differences in the complexity to develop a product will make it difficult to predetermine and ensure a "reasonable price" over time for license fees.
- The common criteria to define a "reasonable price" in the case of a licensing agreement would normally consist of the following elements:
  - An initial down-payment; and
  - An annual running royalty, based on a percentage of a agreed minimum amount of sale and including the right for the provider to audit records, systems, premises, etc.
- Accordingly, licensing fees cannot and should not be stipulated in the Test Guidelines.

Abusive clauses in a licensing agreement

Abusive clauses in a licensing agreement could be:

- Clauses violating EU competition rules
- Clauses with unreasonable prices due to dominant position
- Clause with unreasonable restriction of geographic region
- Clause with unreasonable indemnity provisions
- Clause with unreasonable restriction of marketing and sale

(11) EP 2 633 077 B1

EUROPEAN PATENT SPECIFICATION

ANALYTICAL METHODS AND ARRAYS FOR USE IN THE IDENTIFICATION OF AGENTS INDUCING SENSITIZATION IN HUMAN SKIN

1. An *in vitro* method for identifying agents capable of inducing sensitization of mammalian skin wherein the agents are capable of inducing and triggering a Type IV delayed-type hypersensitivity reaction in a mammal comprising or consisting of the steps of:

   a) exposing a population of dendritic cells or a population of dendritic-like cells to a test agent; and
   b) measuring in the cells the expression of two or more biomarker(s) selected from the group defined in Table 3A;

   wherein the expression in the cells of the two or more biomarkers measured in step (b) is indicative of the sensitizing effect of the test agent.

Any questions?