

Perspectivas

en Derecho y Genoma Humano

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Inter-University Chair BBVA Foundation-Provincial Government of Biscay in Law and the Human Genome. University of Deusto, University of the Basque Country

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Editorial

The right to scientific research is a projection of the right to scientific creation. In this way, the rights of the researcher are protected at the same time that the rights of the collective by promoting the scientific progress for the benefit of society as a whole. From this we can derive another consequence, that is, that the dissemination and circulation of the scientific information and knowledge must be guaranteed and protected.

The improvements that biotechnology has caused reach various sectors, although without a doubt it is human biotechnology that raises the greatest interest. Therefore, the medical genetic research aims, among several of its objectives, to provide information in order to be able to know with greater precision the hereditary diseases that the human being might suffer and therefore be able to more efficiently diagnose, prevent and treat them. The transcendental role of molecular genetics in the development of the pharmaceutical sector, with the development of new vaccines and medicines (specifically, gene therapy medicines) is clear. In this scope, pharmacogenetics will play a decisive role. In order to do so, the genetic research requires many times the use of biological samples, either of the subjects who undergo the experimentation or of other persons who bear no relation to such.

In this way, though there is an acceptance of the legitimacy of scientific research in the biotechnology sector, this freedom must be subject to certain limits. In this respect, the fundamental rights of the individual must be an insurmountable barrier, without prejudice to the hues required by specific situations. The human being, each human being, has value in and of him or herself that must be respected without taking into account the benefits that could be obtained by third parties or for the collective as a whole.

The issue of genetic research has always been a matter of priority in the Inter-University Chair in Law and the Human Genome, as we can't obviate the transcendental ethical and legal aspects that arise around it. This in turn, affects to a great extent the daily work of the researchers. Examples of such interest are the monograph seminar held on this matter last November, which we offer more information in this issue, as well as the diverse research programs in which the diverse aspects of genetic research are studied. Especially, it is necessary to mention the European project EURECA, coordinated by professor John Harris (University of Manchester), whose principal objective is the analysis of the concept of research and its practical implications. The research project underwritten by the Basque Government "Legal implications on the use of human biological samples and bio banks in scientific research" is also noteworthy. Finally, another clear example of interest for genetic research is the recently signed convention by the Basque Foundation on Innovation and Health Research (BIOEF) and the Chair to provide counselling in legal matters that could arise in their research activities.

Opinion

Reflections on the so called "offences related to genetic manipulation" in the Spanish Criminal Code of 1995*

One of the most noteworthy novelties of the Basic Law 10/1995 of 23 November, of the Criminal Code is the inclusion of a series of offences under the generic heading of "offences relative to the genetic manipulation". A series of behaviours that are included were only administrative sanctions under the former laws, Law 35/88 of 22 November on Assisted Reproduction Techniques and 42/88 of 28 December on the Donation and Use of Human Embryos and Foetuses or their Cells, Tissues or Organs. Now, with the approval of such Code, these administrative sanctions have become offences. In turn, Basic law 10/1995 of 23 November of the Criminal Code has been modified through Basic Law 15/2003 of 25 November.

The drafts of the Criminal Codes of 1992 and 1994 show that the Spanish legislator was dubious whether to include the genetic offences in the Criminal Code or in the existing administrative laws. The doctrine is still divided on this issue; while some think that it should be included in the Criminal Code others defend the adoption of a special Criminal law.

The uniqueness of this sector in which we work makes unsuitable the application of the traditional thought that the Criminal Code is the most suitable place to regulate all the offences. On the contrary, in this specific field, a special law that completely and exhaustively regulates this reality of undoubted social relevance, which would include, as a control system, a catalogue of criminal behaviours, would be the most useful way to regulate it. This would greatly ease the interpretative labour of those who enforce the law and would allow the beneficiaries of the law to have a greater awareness of the problems and consequences of their acts. Likewise, this type of solution would allow to more easily adapt the criminal regulation to the (continuous) evolution of the sector.

Therefore, the inclusion of offences relative to the genetic interventions in the Criminal Code is an erroneous political-criminal solution.

Another area that clearly reflects the unsatisfactory act of the legislators is in the heading that contains such unlawful behaviours: "Offences relative to the genetic manipulation". Different from other headings, in the case at hand there is no reference to the right to be protected, as it is not possible to extract a common legal right to all the punishable behaviours but rather to a specific ambit of the scientific reality, as is human biotechnology and, specifically to a set of behaviours in this field. In fact, the formula used in the heading of the section reveals the already insufficient nature of the indication to this respect. There is no reference, as is usual, to offences *against*, rather of offences *relative*, which reveals that only certain aspects of such are protected.

However, behaviours that have little to do with genetic manipulation are encompassed within such a heading. Notwithstanding the offence provided in article 159, the rest of the behaviours bear no relation with such acts. This way, cloning doesn't mean by itself the manipulation of the genotype but only the creation of a very specific genotype. The rest of the hypothetical cases are clearer. Along these lines, the legislator employs the term "genetic manipulation" in its widest and most improper meaning, including the manipulations of gametes and of embryos, as well as the techniques of assisted procreation, in which there is only a germinal and obstetric manipulation. Although they pose delicate bioethical and legal problems, don't belong to the genetic manipulations *strictu sensu*, as they don't modify the genetic heritage.

The offence of genetic manipulation in a strict sense can be found in Article 159 of the Criminal Code. This precept punishes the offence with a prison term from two to six years and special disqualification for public employment, profession or trade from seven to ten years to those, who with a purpose other than the elimination or diminution of defects or serious diseases, manipulate human genes in a manner that alters the genotype. The legal right protected is the genetic integrity of the human being, a legal right of an individual nature. This seems to be the position most in agreement with the typical drafting, as well with its systematic location.

If we understand the legal right in this way, then this allows to determine which are the behaviours that are included in the offence and which, in spite that they could be found in a literal drafting, would not be in the same, as they don't affect the legal right protected. Therefore, in the first place, all the genetic manipulations that are undertaken in any *in vitro* biological element: cells, gametes or even preimplantation embryos are outside the scope of the offence of article 159 of the Criminal Code. As a consequence, only the following behaviours will be included in the offence: the alteration of the genotype of the post implantation embryo, or the alteration of a foetus or of a person that has not granted a valid consent for such, and always when it is a manipulation of the non-pathologic genetic heritage.

On the other hand, the current drafting of the offence prevents that there could be an inclusion of other behaviours that could also harm the protected legal right, specially, the transfer to a woman of an embryo whose non pathologic genotype has been manipulated *in vitro*. The creation of an offence for this behaviour is according to our judgment, convenient and necessary, especially as this will probably be the most habitual way to achieve human beings with a manipulated genotype, as this is the most viable method and that which offers the greatest guarantees from a scientific point of view.

Article 160.3 establishes the offence of cloning, by sanctioning "the creation of identical human beings either by cloning or by other means aimed at the selection of the race". The analysis of this offence reveals two different type

of offences: on the one hand, the creation of identical human beings by means of cloning (in any of its forms); and on the other, the creation of identical human beings by other procedures, always when the selection of the race is the end purpose.

In reference to the first offence in article 160.3 of the Criminal Code, the legal right is the genetic identity of the human being. In sum, the protection is given to the need of each individual to have his or her own genotype, in the sense that it is an original geno type that no other human being has or previously has had to that person.

The offence will be committed when there is a transfer of a viable cloned embryo to the woman and this implants in the maternal uterus, which would happen in the following: a) when an embryo *in vitro* is used with the nuclear transfer technique, when the cloned embryo has the same nuclear genetic composition of the already born individual (alive or dead) or of an embryo or foetus *in utero*; b) when the embryo is created through a technique of embryo splitting, always when there is not a joint transfer with other "twins" (in such case there would be twins, which could even be lawful in certain scenarios) and that there is an already born individual (alive or dead) or of an embryo or foetus that is developing with the same genetic make up; and c) when the embryos are created through the so called Paracloning technique, always when the cloned embryo or embryos have (between them) the same nuclear genetic composition that the already born individual (alive or dead) or of an embryo or foetus *in utero* (be it remembered that through this technique there can be a high number of embryos with the same genetic make up and that some of them have been criopreserved while others have been transferred to a woman, giving rise to a new human person).

On the contrary, the following would remain outside this scenario: a) to begin a pregnancy of identical beings created through artificial twinning that are going to be born simultaneously; b) the obtaining of undifferentiated cells of the preimplantation embryo *in vitro*, destined to be used in a genetic analysis (preimplantation diagnosis); c) the obtaining of several cloned embryos *in vitro*, for example, in order to experiment, so long as they aren't transferred to the woman (so called therapeutic cloning).

The second of the offences in article 160.3 of the Criminal Code has greater complications. The fact that there is a sanction for the creation of identical beings allows us to understand that the protected legal right is also in this case the genetic identity of the human being who is born through these (supposed) techniques that are different to cloning. However, the inclusion of the reference to the "selection of the race" must necessarily lead us to think that the legal right that is apparently being protected must equally have a supraindividual nature. This is an offence of true science fiction, totally inapplicable whose disappearance seems indispensable.

Besides the two previous offences, in reference to the most clear and problematic cases of

genetic interventions on the human beings, the Criminal Code has in the same section and under the same heading ("offences relative to genetic manipulation") three other offences that have little to do with such matter, except if adopted in an excessively broad understanding of the term.

Among these offences, Article 160.1 of the Criminal Code sanctions the use of genetic engineering to produce biological weapons or weapons of mass destruction. In this case, though not directly a matter of genetic intervention on the human being in a true sense, it does make reference to behaviours that employ genetic engineering in such a way that it could affect the personal integrity and the life of the persons and as a last resort, to the human species as a whole, given the massive destruction capability that such weaponry could have. The legal right protected is the survival of the human species.

Though we deem convenient the existence of such an offence, as well as it keeping within the Criminal Code, it would be adequate to relocate it in a place that is closer to its nature, maybe within the offences against the international community. Likewise, we should evaluate the convenience of making it a crime that is subject to the principle of universal justice.

Article 161.1 of the Criminal Code establishes a punishment for any person who practices the assisted reproduction technique to a woman without her consent. This is another case where there are no doubts as to the legal right protected as well as to the unsuitability of its placing. The protected legal right in this offence is the freedom of procreation of the woman, as the highest exponent of her free development of her personality. Therefore, as in the previous paragraph, it would be worthwhile to place this offence in another section next to the offences against the freedom.

Article 160.2 of the Criminal Code poses greater problems. This precept sanctions as an offence the fertilising of human ovules with a purpose other than for human procreation. The life and integrity of the preimplantation embryo as such can't be considered a legal right, as the legal rights make reference to the persons, and in certain cases, to the human beings not yet born, when this have the qualities (biological and environmental) to be able to become persons, something which doesn't happen with the preimplantation embryos.

An offence of this nature means an excessive advance of the barrier of the criminal protection. Therefore, we deem convenient that it disappears and its conversion, in its case, to an administrative infringement.

Dr. Sergio Romeo-Malanda

* The Commentary in this brief article is analysed in greater depth by the author in the monograph *Intervenciones Genéticas y Derecho penal: consideraciones político-criminales y consecuencias dogmáticas/Genetic Interventions on the Human Being and Criminal Law: considerations of Criminal Policy and dogmatic consequences*, soon to be published by Comares Publishing and the Chair in Law and Human Genome (coeditors).

News on the Chair in Law and the Human Genome

Seminar "The new horizons of genetic research". The Inter-University Chair in Law and the Human Genome held a seminar the 28 and 29 of November on the new horizons of genetic research. The inaugural speech, entitled "Los nuevos horizontes de la investigación genética", was addressed by Octavi Quintana, Director of Health Research of the European Commission.

Afterwards, the first session was held, which centred on "the horizons of genetic research and the perspectives on the clinical application". This session was chaired by Mercedes Puente, General Coordinator of the Roche Institute Foundation for the Integral Health Solutions. Lisa Bortolotti, Philosophy Lecturer at the University of Birmingham, participated in this session with the topic of "the concept of scientific research". Javier Benitez, Director of the Genetics Department at CNIO, addressed the "sequencing of the genome, genetic diagnosis and pharmacogenetics". Ana Veiga, Director of the Stem Cell Bank in Barcelona, disserted on the "stem cells research".

The second session was on the topic "the rights and interests involved in genetic research". Virginia Mayordomo, Lecturer of Criminal Law at the University of the Basque Country was responsible for moderating this session. Ricardo Chueca, Professor of Constitutional Law at the University of La Rioja presented the topic on "the fundamental right to scientific research". Jesús Rubi Navarrete, Adjunct to the Director of the Spanish Agency of Data Protection, spoke on "the protection of personal data in genetic research", and Manuel Illescas, partner in Elzaburu and Associates, analysed "the rights of the result of genetic research".

The third session was centred on the topic of "the controls of science research" which was moderated by Rafael Aguirre, Professor of Bible Science at the University of Deusto. Natividad Calvente Cestafe, Chief of Hemoderived Medical Services of the Spanish Medicine Agency participated with the speech on "the regulation of the clinical trials with gene therapy". María Antonia Serrano, Chief of the Clinical Evaluation of Biotechnological Medicines and Gene Therapy of the Spanish Agency for Medicines, whose theme was "traceability, circulation and safety of the biological samples used in research". Iciar Alfonso Farnós, Medical Doctor Specialist in Clinical Pharmacology and Secretary of the Ethics Committee on Clinical Research of the Autonomous Community of the Basque Country, made a dissertation on "the function of the Ethical Committees in Genetic Clinical research".

The fourth session was moderated by Roberto Bilbao, Manager and Coordinator of Health Research in the Basque Country, dealt with "the relations between Law and Science Research". "Crossdisciplinarity as a method of scientific research, its projection in relation with the empirical and social sciences" was addressed by Miguel Moreno Muñoz, Doctor in Philosophy. Iñigo de Miguel Beriain, Research Fellow of the Inter-university Chair BBVA Foundation Provincial Government of Biscay in Law and the Human

Genome, University of Deusto, University of the Basque Country, with the heading "the cross disciplinary methodology of Law in relation with Science and Technology". Peteris Zilgavis, Chief of the Ethical Unit of the European Commission in Brussels, spoke on "the evaluation of the ethical and legal aspects in the granting of funds for research projects".

Current state of the research projects. Several meetings have taken place in these last months to follow up the diverse research projects in which the Chair in Law and the Human Genome is involved: the European project EURECA (Puerto de la Cruz, 7-9 November), European project CLEMIT/REPROGENETICS (Budapest 6-9 November), European project PROPEUR (Bilbao 2-4 December) which held the workshop on "Alternative Models of human genome governance".

At the same time, during this period two new European projects in which the Chair participates have been granted: the European project CHIMBRIDS, coordinated by Professor Jochen Taupitz (University of Mannheim) and the European project BIOTHET-ED, coordinated by professor Franco Celada (University of Genova).

The objective of the CHIMBRIDS project is to make a thorough analysis of the fundamental problems in chimera and hybrid research. The BIOTHET-ED aims to foster cross disciplinary meetings with scientists, to impart diverse courses in regions of Eastern Europe as well as to create electronic databases and publications in the field of Bioethics.

Signing of the agreement of collaboration with BIOEF. The Inter-University Chair in Law and the Human Genome and the Basque Foundation of Health Innovation and Research (BIOEF) have signed a collaboration agreement in which the Chair is to provide services in the fields of Bioethics, Biomedical and Biotechnological Law, specifically, the drafting of reports, the preparation of files of documentation of an ethical or legal nature, the preparation of meetings, the imparting of courses and seminars of specialised education, to provide counsel on the drafting of conventions, contracts and the preparation of research projects and in the solicitation of patents.

The Basque Foundation of Health Innovation and Research (BIOEF) has as its basic objective the promotion of innovation and research in the health system of the Autonomous Community of the Basque Country, as instruments for the development and the continuous improvement of the capacity of intervention in the health of the population.

Interuniversity online Master in Bioethics. The Inter-University Chair in Law and the Human Genome is the Centre with the responsibility in the University of the Basque Country to impart an Inter -University Master in Bioethics, along with the University of La Laguna and Las Palmas de Gran Canarias. This master, which is beginning its second edition, has as its object to encourage the treating and thinking of

the professionals, especially in the health sector, on ethical aspects of the assistance practice. Its two main characteristics are: its inter university nature and its online imparting, with complementary presentational formation

HUGO appointment. Professor Romeo Casabona has been named member of the Ethics Committee of HUGO (Human Genome Organisation- Organización Mundial del Genoma Humano), an international entity of scientists who work in the field of human genetics.

HUGO was created in 1989 by some of the most prestigious geneticists in the world, with its main purpose to promote and support the international collaboration in the field of human genetics.

The Ethics Committee of HUGO, which Professor Romeo Casabona has just joined, is presided by professor Ruth Chadwick (United Kingdom) and is composed of people from varied trainings and from all the regions of the planet, such as: Ishwar Verma (India), Kare Berg (Norway), José María Cantu (Mexico), Abadallah Daar (Canada), Kazuto Kato (Japan), Xiaomei Zhai (R. P. China), Daryl Macer (Thailand) and Thomas Murray (USA).

The HUGO Ethics Committee was created in order to promote discussion and understanding of social, legal and ethical issues as they relate to the conduct of, and the use of knowledge derived from, human genome research; to act as an interface between the scientific community, policy makers, educators, and the public; to collaborate with other international bodies in genetics, health, and society with the goal of disseminating information.

Deusto Research Award 2005. The research team of the Chair in Law and the Human Genome made up of the following doctors: Carlos M. Romeo Casabona, Aitziber Emaldi Cirión, Leire Escajedo San Epifanio, Pilar Nicolás Jiménez, Sergio Romeo Malanda and Asier Urruela Mora, have been awarded by the UD-Santander Group the 2005 Research Award. The award-winning research was entitled "the Ethics and Law facing the Biomedicine of the future".

The Chair on Law and the Human Genome has been granted the "High Yield" Status within the University of Deusto. The Chair on Law and the Human Genome has been labelled as "High Yield Team" by the research board of the University of Deusto in its Resolution of 24 June 2005. This resolution establishes 63 research teams in three categories: Emerging (26), Consolidated (36) and High Yield (1).

Researchers who have made research stays in the Chair in 2005. Throughout last year, the Chair in Law and the Human Genome has received several foreign researchers who have made a research stay and have searched the available bibliographical material: Kolis Sumerer (Italy), Meigla Merlin (Brasil), Catalina Peña Guillén (Ecuador), Federica Rongione (Italy), Erika Cespedes (Peru), Anna Falcone (Italy) and Rosella Serafino (Italy).

Publications of the Inter-University Chair

Revista de Derecho y Genoma Humano/Law and the Human Genome Review. Issue number 23 has been published, July-December 2005 with the following content: *Limitation of Medical Research in German Law* (Erwin Deutsch); *Reflexiones sobre un modelo de articulación constitucional del poder público en el ámbito de las ciencias biomédicas* (Fernando Fonseca Ferrandis);

Sistema jurídico-biotecnológico y derecho de la vida (Lorenzo Mellado Ruiz); *La protección penal del Patrimonio Genético en Brasil* (Comentarios a la nueva "Ley de Bioseguridad de 24 de marzo de 2005) (Gisele Mendes De Carvalho); *The status of the extracorporeal embryo in German Law (Part. II)* (Carola Müller); *Gene tests and employees in an international comparison* (Jürgen Simon / Christian

Ravenstein); *La intervención judicial en la prueba de ADN* (Comentario a las Sentencias de la Sala Segunda del Tribunal Supremo nº. 501/2005, de 19 de abril de 2005 y nº. 131/2005, de 14 de octubre de 2005) (Arantza Libano Beristain); *El ADN. Un tsunami genético que arrasó con el formalismo procesal. El nuevo proceso de filiación. En el nombre del padre* (Enrique Varsi Rospigliosi).

Activities of the members of the Inter-University Chair

Carlos Romeo Casabona has given, among others, the following conferences "Biobanking", In the European Centre for Life Sciences, Health at the Courts (Pavia, 8 September); "The issue of the Patent of the Embryonic Stem Cells: Legislative evolution in Southern Europe" (Montreal, 13 September); "Intervenciones en el genoma humano ¿terapia o eugenesia?/ interventions on the human genome, therapy or eugenics?" in the Deusto Forum within the cycle of conferences on Science, Life and Health (Bilbao 8 November); "Patentes en biotecnología: una cuestión legal y ética/patents in biotechnology: a legal and ethical matter", in the VII National Congress on Bioethics (Valencia, 11 November); "Aspectos legales en el Laboratorio de Reproducción Asistida Humana/Legal aspects in the human assisted procreation laboratory", in the III Congress of the Association for the Study of Reproductive Biology (Zaragoza, 16-18 November); "La protección de los datos genéticos en relación con muestras biológicas para investigación biomédica/the protection of genetic data in relation with the biological samples for use in biomedical research", in the World Congress on Bioethics, held by the International Society of Bioethics (Gijón, 22 November); "El debate actual sobre la investigación con células madre/the current debate on the stem cells research", Conference organised by the Ateneo (Santander, 12 December). Additionally, he has published several articles, among which could be mentioned "Salud humana, biotecnología y principio de precaución/Human Health, Biotechnology and precautionary principle", in *El principio de precaución y su proyecto en el Derecho administrativo español*, Continuous Legal Training Manuals of the General Council of the Judiciary, Law School, Madrid 2005; "Humanbiotechnologie, Transkulturalität, Globalisierung und symbolisches (Straf-) Recht", in Nikolaus Knoepffler, Dagmar Schipanski, Stefan Lorenz Sorgner (Hg.), *Humanbiotechnologie als gesellschaftliche Herausforderung*, Verlag Karl Alber Freiburg/München, 2005; "The Place of Civil Law in Biotechnology" and "Law, Bioethics and Biosafety Regulations", in Laurens Landeweerd, Louis-Marie Houdebine, Ruud Termeulen (Editors), *BioTechnology-Ethics. An introduction*, Angelo Pontecorvoli Editore Firenze, IAAS-EDAP- International Association for Arts and Sciences, Firenze, 2005; "O Direito Biomédico e a Bioética", and "O consentimento informado na relação entre médico e paciente: aspectos jurídicos", in Carlos María Romeo Casabona, Juliane Fernandes Queiroz (Coordinators), *Biotecnologia e suas implicações ético-jurídicas*, Del Rey Publishing, Belo Horizonte, 2005; "La constitución europea, un núcleo de los derechos humanos de la medicina y la biología/the european constitution, a core of human rights of medicine and biology", in *Lex Medicinæ: Revista Portuguesa de Direito da Saúde*, 2005.

Iñigo de Miguel Beriain participated in the meeting "Embedding Ethics in Scientific Practice", held in Budapest 6-9 of November, 2005, where he made a presentation on the concept of human dignity. Likewise, he has published an article entitled "La dignidad humana, fundamento del Derecho/The human dignity, fundament of Law" in Issue nº 27 of the Official Bulletin of the Faculty of Law of the UNED, corresponding to the "García Goyena" Awards that are held each year by this Institution.

Aitziber Emaldi Ciriñ has published the following works: "A responsabilidade dos profissionais sanitários no marco do assessoramento genético", in *Biotecnologia e suas implicações ético-jurídicas*, Coordinated by Carlos María Romeo Casabona and Juliane Fernandes Queiroz. Del Rey, Belo Horizonte, 2005; "Testamento Vital/living will", *Federación Nacional Alcer*, nº 132, January-February-March, 2005; "El uso del diagnóstico predictivo/the use of the predictive diagnosis", *Federación Nacional Alcer*, nº 133, April-May-June, 2005; "La polémica sobre el uso del diagnóstico preimplantacional/the controversy on the use of the preimplantation diagnosis", Roche Institute Web Page, Area Jurídica, 2005. Additionally, she gave the following conference "Las células madre", in the Alzheimer's Day "Recordando a los que olvidan" (Bilbao, 19 September).

Leire Escajedo San Epifanio has published the following articles: "Acercas de la investigación con preembriones y la incidencia autonómica en la determinación del contenido esencial de los derechos fundamentales/regarding the research with preembryos and the incidence in the autonomous law in relation with the establishing of the essential content of the fundamental rights", in *Estado autonómico: integración, solidaridad, diversidad*, volume II, Colex-Goberna, Madrid, 2005; "Reflexiones constitucionales sobre los alimentos transgénicos: libre competencia, salud pública y derechos de los consumidores/Constitutional reflections on the transgenic food: freedom of competition, public health and the rights of the consumers", *La Ley*, 29 November, 2005.

Amelia Martín Uranga took part in the Seminar on Individualised Medicine that was organised by the Roche Institute and the Lain Entralgo Agency this last October with a presentation entitled "Marco legal actual y nuevas necesidades normativas para el desarrollo de la Medicina Individualizada/the current legal framework and the new normative needs for the development of an individualised medicine". She gave a conference on "Shared patenting in European IP Law" at the University of Deusto, within the European Project ProPeur. Likewise, she taught the "Curso sobre Gestión del

Conocimiento para Empresas de Base Tecnológica" held by the Chamber of Commerce of Madrid and Madrid. She also teaches the course on "aspectos éticos, sociales y legales de la Biotecnología/ethical social and legal aspects of biotechnology" in the Bioethology Masters at the University of Granada. She published the article "¿Se pueden patentar las células madre?/ can stem cells be patented?" in the magazine *Industria Farmacéutica*, September/October, 2005.

Pilar Nicolás Jiménez has given the following conferences: "Intimidad y confidencialidad en el ámbito sanitario/privacy and confidentiality in the health sector", in the *Curso de Especialista en Derecho Sanitario*, Legal Practice School of the Law School of the University of Murcia (Murcia, 15 February); She presented the communication "¿A quién se le debe comunicar el resultado de un diagnóstico genético prenatal?/ who should be notified of the results of an antenatal genetic diagnosis?" in the *IV Congreso Mundial de Bioética*, organised by SIBI (Gijón, 22 November). She has co-authored with Carlos Romeo: "The implementation of Directive 95/46/CE in Spain", in *Implementation of the Data Protection Directive in Relation to Medical Research in Europe*, and "Research Ethics Committees in Spain" in *Data Protection and Medical Research in European Countries*, both edited by Deryck Beylveyle and colaboradores, Sheffield Institute of Biotechnological Law and Ethics, Ashgate. She has also published: "A regulamentação da clonagem humana no Conselho da Europa: o protocolo de 12 de janeiro de 1998", in *Biotecnologia e suas implicações ético-jurídicas* (Carlos María Romeo Casabona and Juliane Fernandes Queiroz, Coords.), Del Rey, Belo Horizonte.

Asier Urruela Mora has obtained the Extraordinary Award in a Doctorate by the University of the Basque Country in the field of Social Sciences and Humanities for his doctoral thesis "La existencia de anomalía o alteración psíquica a la luz de los modernos avances en Psiquiatría y Genética/the defence due to an anomaly or psychic alteration as put forward by the modern advances of psychiatry or genetics". Likewise, he has published the works entitled "Culpabilidad y herencia genética/culpability and genetic heritage", in the collective works "Hans Welzel en el pensamiento penal de la modernidad" (Buenos Aires, Argentina); "La investigación con células madre. Aspectos éticos y jurídicos/ stem cells research, ethical and legal aspects" in the book *Células troncales. Aspectos científicos-filosóficos y jurídicos* (UNAM-México) and "Del Derecho hacia la Genética: un camino imprescindible/law to genetics a necessary journey" in the electronic magazine of the Roche Institute. Additionally, he has taught in the Master on Health Law of the Law School of Albacete in the University of Castilla la Mancha.

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