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EDITORIAL

The birth of death, 30 years ago

Cell Death & Differentiation (2024) 31:379–386; https://doi.org/10.1038/s41418-024-01276-8

Nearly 30 years ago, a few young scientists (let's call them, with a lack of imagination, G, M and D) were pottering around on the periphery of science when they became aware of a type of cell death called apoptosis that was becoming fashionable. By phone (landline, of course) they discussed this, to them, new development – could it even enhance science. So they decided to convene a meeting, inviting some of the big names in cell death. None of the big names would come unless the meeting could be held somewhere exotic. So GDM decided on small hilltop town called Erice – a cobbled village of stunning views and ancient Greek temples, a history that has seen the influence of historic empires, currently a worldwide international school for physics (Ettore Majorana Foundation and Center for Scientific Culture; https://ettoremajoranafoundation.it). And the big shots came and the meeting was a great success and proved to be highly enlightening for GDM.

The participants were housed in a monastery – which wasn't quite the ideal setting for GDM – a tavern or jazz club would have suited better. But in the paved garden where once celibate monks strolled, stood two huge barrels of Marsala wine – one dry, one sweet. And, of course, it was the custom, after a dinner of pasta and wine, to adjourn to the garden with its barrels and, among cell death cognoscenti and ignoramuses to engage in lively discussions about politics, sex, and occasionally science. We have no memory now of who amongst the cognoscenti said that the problem with the cell death field was that there is no dedicated journal, nor which of the three boys amongst G, M and D, said "*OK, we'll start one*". But having said that, we had no choice but to proceed.

So with a great deal of support from friends and colleagues acquainted to the publishing world, and having regained sobriety, we embarked on our journey. It may be significant that the first company to take on this unknown journal had just sold the *Lancet*, Fig. 1. Perhaps they saw in us the potential to restore their profits. To our positive surprise, *Cell Death and Differentiation* achieved an initial impact factor of 4.25 (and GDM still cherish the celebratory T shirt). As you all know, the journal's metrics are now hovering around triple that. Fine, we may have inappropriately sown a seed in that monastery, but it is you all, the authors, editors and reviewers who have not only helped CDD survive, but flourish. A large Marsala to you all – and many many thanks.

What better occasion, then, than this 30th anniversary with an entire year of celebrations, and what better venue than this, to celebrate the ultimate recognition of the crucial importance of apoptosis in biology. For it will be here, at Villa Mondragone in Rome in 1582, that Pope Gregorius XIII replaced the old inaccurate Julian

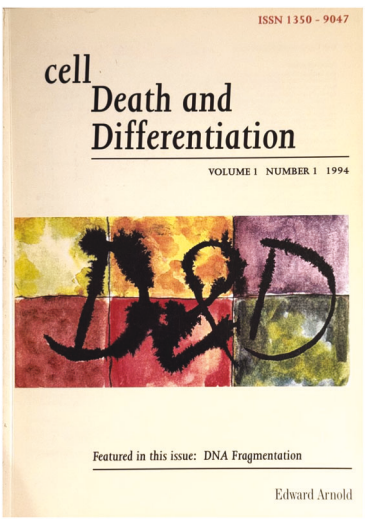

Fig. 1 Issue number 1, 1994. Cover of the the first issue, with the original editorial board and the three editorial offices in US, UK and Italy.

Fig. 2 Topics maps. Visualization map of topics score for Cell Death Differentiation (upper panel) and Cell Death Disease (lower panel). Subjects are distinct for the two journals, with a much wider interest than strict "apoptosis", especially for the second journal that results a broad cell biology journal. We thank Vicky Johnson (Wiley) for supplying the data via Keyword Plus Cloud.

Received: 20 January 2024 Revised: 26 February 2024 Accepted: 28 February 2024
Published online: 10 April 2024

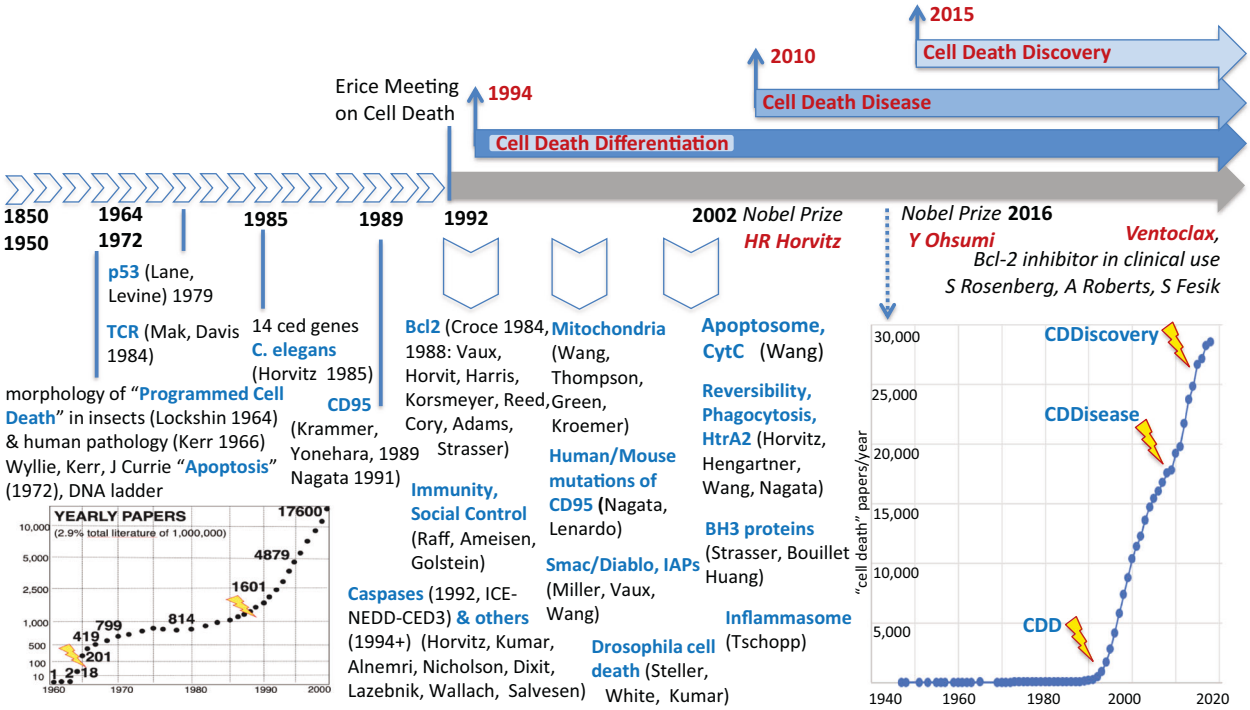

Fig. 3 Timeline of cell death. Evolution of the field, starting from the early anecdotal observation by the neurobiologist Rita Levi-Montalcini (1942), the embryologist Gluckmann (1951), the hematologist Bessis (1955), and the biologist Tata (1960) clearly described distinct morphological phases of cell death. In the 1960s, working on insect development, Richard Lockshin recognized the coordinated death of sheets of cells – a process he termed Programmed Cell Death – and which he showed to be energy dependent and to require gene transcription. In 1966, John Saunders, in his review on 'Death in embryonal systems', was able to emphasize the central role of cell death in molding organisms during development [17]. A little later, Kerr, Wyllie, and Currie described a similar cell death morphology in mammals, but this time affecting individual cells within a tissue, and for which they coined the term apoptosis [18]. But something clicked in the late '80 with the pivotal work of Bob Horvitz on *C. elegans* and the discovery of essential genes like Ceds, p53, TCR, Bcl2 and caspases, when GDM organized a crucial meeting in Erice (Sicily) in 1992, when it was decided to give birth to death as a scientific journal [19]. We apologize for the absence of major contributions and contributors and latest evolution, like pyroptosis, necroptosis, ferroptosis, that we plan to expand during this coming year. At present, an explosion of scientific papers on cell death has nearly reached the incredible level of 3% of the entire scientific literature published every year, forcing us to follow CDD (1994) with two sister journals, CDDisease (2010) and CDDiscovery (2015).

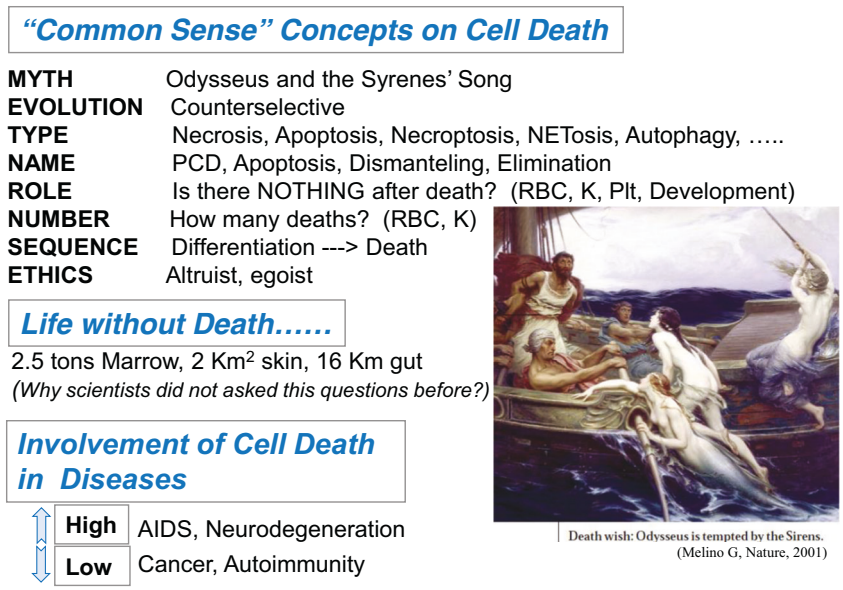

Fig. 4 Timeline of cell death. '*In nomen omen*' (Titus Maccius Plautus), more precisely '*Nomina sunt omina*' [names are extremely important]. Introducing the term 'programmed cell death' (instead of dismantling of degradation), and more specifically 'apoptosis' was an inspired choice, stimulating curiosity and interest. However, names drag wanton significance with them, that should not influence science. Is death coming after life, or there is only one death (not for Red Blood Cells or Keratinocytes)? As discussed earlier [19], the common sense of death ethical issues (altruism, counter-evolution, myths) as some effect on our science. Currently new forms of death (necroptosis, pyroptosis, ferroptosis, ….) are expanding the interest, with distinct pathological application [20].

Table 1. Most cited CDD papers.

	Cell death differentiation Title	Authors	Cites
	REVIEWS		
1	Molecular mechanisms of cell death: recommendations of the NCCD 2018	Galluzzi, et al.	3238
2	Emerging roles of caspase-3 in apoptosis	Porter, AG; & Jänicke, RU	2989
3	Classification of cell death: recommendations of the NCCD 2009	Kroemer, et al..	2311
4	Roles of CHOP/GADD153 in endoplasmic reticulum stress	Oyadomari, S & Mori, M	2275
5	Ferroptosis: process and function	Xie, et al.	1975
6	Molecular definitions of cell death subroutines NCCD 2012	Galluzzi, et al.	1856
7	Tumor necrosis factor signaling	Wajant, et al.	1832
8	The Beclin 1 network regulates autophagy and apoptosis	Kang, et al.	1779
9	TLR signaling	Kawai, T & Akira, S	1554
10	Oxidative stress and autophagy: the clash between damage and metabolic needs	Filomeni, et al.	1309
11	Caspase structure, proteolytic substrates, and function during apoptotic cell death	Nicholson, DW	1258
12	Autophagy: molecular machinery for self-eating	Yorimitsu, T & Klionsky, DJ	1201
13	The pathways of mitophagy for quality control and clearance of mitochondria	Ashrafi, G & Schwarz, TL	1115
14	The miR34 family in cancer and apoptosis	Hermeking, H.	990
15	Life and death partners: apoptosis, autophagy and the cross-talk between them	Eisenberg-Lerner, et al.	987
16	COVID-19 infection: the perspectives on immune responses	Shi, et al.	983
17	Autophagy and signaling: their role in cell survival and cell death	Codogno, P & Meijer, AJ	953
18	Mechanisms of cytochrome c release from mitochondria	Garrido, et al.	927
19	Decision making by p53: life, death and cancer	Oren, M	889
20	BCL-2 family proteins: changing partners in the dance towards death	Kale, et al.	877
	ORIGINAL PAPERS		
1	Identification and expansion of the tumorigenic lung cancer stem cell population	Eramo, et al.	1367
2	Activation of the NALP3 inflammasome is triggered by low intracellular potassium concentration	Petrilli, et al.	1102
3	Role of autophagy in temozolomide-induced cytotoxicity for malignant glioma cells	Kanzawa, et al.	843
4	T cell apoptosis by tryptophan catabolism	Fallarino, et al.	779
5	ER stress (PERK/eIF2α phosphorylation) mediates the polyglutamine-induced LC3 conversion, an essential step for autophagy formation	Kouroku, et al.	774
6	The pyroptosome: a supramolecular assembly of ASC dimers mediating inflammatory cell death via caspase-1 activation	Fernandes-Alnemri, et al.	754
7	Viable neutrophils release mitochondrial DNA to form neutrophil extracellular traps	Yousefi, et al.	664
8	Superoxide is the major reactive oxygen species regulating autophagy	Chen, et al.	612
9	Oxidative stress induces autophagic cell death independent of apoptosis in transformed and cancer cells	Chen, et al.	566
10	Mitochondrial membrane potential regulates matrix configuration and cytochrome c release during apoptosis	Gottlieb, et al.	560
11	PERK is required at the ER-mitochondrial contact sites to convey apoptosis after ROS-based ER stress	Verfaillie, et al.	552
12	Response to myocardial ischemia/reperfusion injury involves Bnip3 and autophagy	Hamacher-Brady, et al.	511
13	Chemotherapy resistance of glioblastoma stem cells	Eramo, et al.	495
14	Induction of tumor apoptosis through a circular RNA enhancing Foxo3 activity	Du, et al.	486
15	Neuroprotection by BDNF against glutamate-induced apoptotic cell death is mediated by ERK and PI3-kinase pathways	Almeida, et al.	456
16	The knockout of miR-143 and-145 alters smooth muscle cell maintenance and vascular homeostasis in mice: correlates with human disease	Ella, et al.	455
17	Ischemia-induced ACSL4 activation contributes to ferroptosis-mediated tissue injury in intestinal ischemia/reperfusion	Li, et al.	453
18	Autophagy delays apoptotic death in breast cancer cells following DNA damage	Abedin, et al.	433
19	Necroptosis, necrosis and secondary necrosis converge on similar cellular disintegration features	Vanden Berghe, et al.	413
20	Role of glutathione depletion and reactive oxygen species generation in apoptotic signaling in a human B lymphoma cell line	Armstrong, et al.	398

Clearly, with a distinct age, for the three journals, CDD (30 years), the number of citations collected is significantly different, as reflected in the relative impact factor of the three journals. Data from the more restrictive Web of Science, Clarivate (previously ISI Thmson).

(Cesarean) calendar with the still sun-based but far more reliable Gregorian version that we still use today. The focus of this gathering will be on cancer, precision medicine and artificial intelligence. The starting point will be 45 years since the identification of p53 by Levine [1] and Lane [2] in 1979. That work led to an immense literature laying a significantly improved understanding of cancer development. Nonetheless, still a large number of queries remain unexplored and need clarification. Hence, the original authors, as well as the new aficionados, will merge their experience with the new impact of virtual science. We plan also at least another international meeting in

Table 2. Most cited CDDisease papers.

	Cell death disease Title	Authors	Cites
	REVIEWS		
1	Ferroptosis: past, present and future	Li, et al.	1442
2	Autophagy and chemotherapy resistance: a promising therapeutic target for cancer treatment	Sui, et al.	927
3	ROS homeostasis and metabolism: a dangerous liason in cancer cells	Panieri, E & Santoro, MM	779
4	Targeting cellular metabolism to improve cancer therapeutics	Zhao, et al.	778
5	Recent advances in the mechanisms of NLRP3 inflammasome activation and its inhibitors	Yang, et al.	747
6	Mesenchymal stem cells and immunomodulation: current status and future prospects	Gao, et al.	725
7	Cellular death, reactive oxygen species (ROS) and diabetic complications	Oliveira Volpe, et al.	661
8	T-cell exhaustion in the tumor microenvironment	Jiang, et al.	614
9	Systems biology of cisplatin resistance: past, present and future	Galluzzi, et al.	576
10	The role of pyroptosis in cancer: pro-cancer or pro-host?	Xia, et al.	501
11	Hydrogen peroxide: a Jekyll and Hyde signaling molecule	Gough, DR & Cotter, TG	428
12	Cell death-based treatment of lung adenocarcinoma	Denisenko, et al.	401
13	Detection of immunogenic cell death and its relevance for cancer therapy	Fucikova, et al.	382
14	BCL-2 family isoforms in apoptosis and cancer	Warren, et al.	348
15	Defining the role of the tumor vasculature in antitumor immunity and immunotherapy	Schaaf, et al.	345
16	Cardiomyocyte death: mechanisms and translational implications	Chiong, et al.	341
17	N6-methyladenosine links RNA metabolism to cancer progression	Dai, et al.	325
18	PI3K/AKT pathway as a key link modulates the multidrug resistance of cancers	Liu, et al.	324
19	Cyclophilin A: a key player for human disease	Nigro, et al.	306
20	Clinical update on head and neck cancer: molecular biology and ongoing challenges	Alsahafi, et al.	298
	ORIGINAL PAPERS		
1	Caspase-mediated cleavage of Beclin-1 inactivates Beclin-1-induced autophagy and enhances apoptosis by promoting the release of proapoptotic factors from mitochondria	Wirawan, et al.	520
2	Minocycline selectively inhibits M1 polarization of microglia	Kobayashi, et al.	518
3	Caloric restriction and resveratrol promote longevity through the Sirtuin-1-dependent induction of autophagy	Morselli, et al.	474
4	CircHIPK3 promotes colorectal cancer growth and metastasis by sponging miR-7	Zeng, et al.	464
5	Impaired autophagic flux is associated with increased endoplasmic reticulum stress during the development of NAFLD	Gonzalez-Rodriguez, et al.	418
6	Roles of Wnt/β-catenin signaling in the gastric cancer stem cells proliferation and salinomycin treatment	Mao, et al.	415
7	P53-regulated long non-coding RNA TUG1 affects cell proliferation in human non-small cell lung cancer, partly through epigenetically regulating HOXB7 expression	Zhang, et al.	387
8	JC-1: alternative excitation wavelengths facilitate mitochondrial membrane potential cytometry	Perelman, et al.	371
9	Pathogenic role of lncRNA-MALAT1 in endothelial cell dysfunction in diabetes mellitus	Liu, et al.	368
10	Ferroptosis is induced following siramesine and lapatinib treatment of breast cancer cells	Ma, et al.	357
11	ROS-mediated autophagy increases intracellular iron levels and ferroptosis by ferritin and transferrin receptor regulation	Park, E & Chung, SW	350
12	Potent and selective small-molecule MCL-1 inhibitors demonstrate on-target cancer cell killing activity as single agents and in combination with ABT-263 (navitoclax)	Leverson, et al.	346
13	Nicotine promotes atherosclerosis via ROS-NLRP3-mediated endothelial cell pyroptosis	Wu, et al.	345
14	Intravenous immunoglobulin suppresses NLRP1 and NLRP3 inflammasome-mediated neuronal death in ischemic stroke	Fann, et al.	344
15	Necrostatin-1 analogs: critical issues on the specificity, activity and in vivo use in experimental disease models	Takahashi, et al.	344
16	Long non-coding RNA UCA1 promotes breast tumor growth by suppression of p27 (Kip1)	Huang, et al.	317
17	Mitochondrial complex I inhibition triggers a mitophagy-dependent ROS increase leading to necroptosis and ferroptosis in melanoma cells	Basit, et al.	303
18	LincRNA-ROR induces epithelial-to-mesenchymal transition and contributes to breast cancer tumorigenesis and metastasis	Hou, et al.	302
19	Long non-coding RNA CCAT1 promotes gallbladder cancer development via negative modulation of miRNA-218-5p	Ma, et al.	300
20	Acquisition of epithelial-mesenchymal transition and cancer stem cell phenotypes is associated with activation of the PI3K/Akt/mTOR pathway in prostate cancer radioresistance	Chang, et al.	300

Number of citations of CDDisease most cited papers (14 years). Data from the Web of Science, Clarivate.

Table 3. Most cited CDDiscovery papers.

	Cell death discovery Title	Authors	Cites
	REVIEWS		
1	Zinc-finger proteins in health and disease	Cassandri, et al.	398
2	The caspase-3/GSDME signal pathway as a switch between apoptosis and pyroptosis in cancer	Jiang, et al.	238
3	Ferroptosis: a cell death connecting oxidative stress, inflammation and cardiovascular diseases	Yu, et al.	177
4	Zebrafish: an emerging real-time model system to study Alzheimer's disease and neurospecific drug discovery	Saleem, S & Kannan, RR	115
5	Bat-man disease transmission: zoonotic pathogens from wildlife reservoirs to human populations	Allocati, et al.	108
6	Alveolar type 2 progenitor cells for lung injury repair	Olajuyin, et al.	98
7	Progress in understanding the role of lncRNA in programmed cell death	Jiang, et al.	96
8	Ferroptosis in liver disease: new insights into disease mechanisms	Wu, et al.	92
9	Haematopoietic stem cells: past, present and future	Ng, et al.	85
10	ACE2 expression and sex disparity in COVID-19	Gagliardi, et al.	80
11	Mitochondrial dysfunction in fibrotic diseases	Li, et al.	79
12	Cardiac progenitor cells for heart repair	Le, TYL & Chong, JJH	78
13	Questions and controversies: the role of necroptosis in liver disease	Dara, et al.	75
14	Extracellular vesicles in cardiovascular diseases	Fu, et al.	70
15	Role of interleukins in the pathogenesis of pulmonary fibrosis	She, et al.	67
16	Caspases in retinal ganglion cell death and axon regeneration	Thomas, et al.	61
17	Nuclear matrix metalloproteinases: functions resemble the evolution from the intracellular to the extracellular compartment	Xie, et al.	59
18	Heme-based catalytic properties of human serum albumin	Ascenzi, et al.	59
19	The Janus-like role of proline metabolism in cancer	Burke, et al.	55
20	Current questions and possible controversies in autophagy	Lindqvist, et al.	51
	ORIGINAL PAPERS		
1	SARS-Coronavirus Open Reading Frame-8b triggers intracellular stress pathways and activates NLRP3 inflammasomes	Shi, et al.	311
2	A novel defined pyroptosis-related gene signature for predicting the prognosis of ovarian cancer	Ye, et al.	255
3	SARS-CoV-2 engages inflammasome and pyroptosis in human primary monocytes	Ferreira, et al.	157
4	Identification of the pyroptosis-related prognostic gene signature and the associated regulation axis in lung adenocarcinoma	Lin, et al.	119
5	Autophagy limits proliferation and glycolytic metabolism in acute myeloid leukemia	Watson, et al.	115
6	Circular RNA cIARS regulates ferroptosis in HCC cells through interacting with RNA binding protein ALKBH5	Liu, et al.	111
7	AMPK maintains energy homeostasis and survival in cancer cells via regulating p38/PGC-1α-mediated mitochondrial biogenesis	Chaube, et al.	102
8	Characterization of GSK'963: a structurally distinct, potent and selective inhibitor of RIP1 kinase	Berger, et al.	97
9	Curcumin induces crosstalk between autophagy and apoptosis mediated by calcium release from the endoplasmic reticulum, lysosomal destabilization and mitochondrial events	Moustapha, et al.	94
10	Retinal pigment epithelial cell necroptosis in response to sodium iodate	Hanus, et al.	93
11	Three cell deaths and a funeral: macrophage clearance of cells undergoing distinct modes of cell death	Kloditz, K & Fadeel, B	89
12	Glucose-regulated protein 75 determines ER-mitochondrial coupling and sensitivity to oxidative stress in neuronal cells	Honrath, et al.	87
13	Multiscale analysis of a regenerative therapy for treatment of volumetric muscle loss injury	Aguilar, et al.	85
14	Tumor cell senescence response produces aggressive variants	Yang, et al.	85
15	The role of neutrophil death in chronic inflammation and cancer	Brostjan, C & Oehler, R	81
16	Exosomes from adipose-derived mesenchymal stem cells prevent cardiomyocyte apoptosis induced by oxidative stress	Liu, et al.	78
17	Apigenin suppresses the stem cell-like properties of triple-negative breast cancer cells by inhibiting YAP/TAZ activity	Li, et al.	78
18	The lauric acid-activated signaling prompts apoptosis in cancer cells	Lappano, et al.	78
19	Rap1-mediated nuclear factor-kappaB (NF-κB) activity regulates the paracrine capacity of mesenchymal stem cells in heart repair following infarction	Zhang, et al.	77
20	Cell death and cell lysis are separable events during pyroptosis	DiPeso, et al.	76

Ranking and citations of the most cited CDDiscovery (9 years) papers.

Table 4. Representative impact factors 2022.

JIF relative ranking				
Impact factors 2022				
Journal	**Category**	**Citations**	**2022 JIF**	**Quartile**
NATURE	MULTIDISCIPLIN	964,876	64.8	Q1
CELL	BIOCHEMISTRY	338,069	64.5	Q1
SCIENCE	MULTIDISCIPLIN	818,308	56.9	Q1
CANCER CELL	CELL BIOLOGY	55,579	50.3	Q1
IMMUNITY	IMMUNOLOGY	77,462	32.4	Q1
NATURE IMMUNOLOGY	IMMUNOLOGY	58,377	30.5	Q1
CELL METABOLISM	CELL BIOLOGY	58,914	29.0	Q1
NATURE CELL BIOLOGY	CELL BIOLOGY	50,849	21.3	Q1
BLOOD	HEMATOLOGY	180,276	20.3	Q1
CIRCULATION RESEARCH	CARDIAC	66,672	20.1	Q1
TRENDS IN CELL BIOLOGY	CELL BIOLOGY	19,549	19.0	Q1
NATURE STRUCTURAL & MOLECULAR BIOLOGY	BIOCHEMISTRY	30,445	16.8	Q1
ANNUAL REVIEW BIOCHEMISTRY	BIOCHEMISTRY	22,840	16.6	Q1
NEURON	NEUROSCIENCES	108,483	16.2	Q1
MOLECULAR CELL	BIOCHEMISTRY	86,313	16.0	Q1
TRENDS IN MICROBIOLOGY	BIOCHEMISTRY	18,957	15.9	Q1
NUCLEIC ACIDS RESEARCH	BIOCHEMISTRY	282,987	14.9	Q1
NATURE CHEMICAL BIOLOGY	BIOCHEMISTRY	30,143	14.8	Q1
TRENDS IN BIOCHEMICAL SCIENCES	BIOCHEMISTRY	21,556	13.8	Q1
SCIENCE ADVANCES	MULTIDISCIPLIN	126,246	13.6	Q1
AUTOPHAGY	CELL BIOLOGY	27,639	13.3	Q1
CELL DEATH AND DIFFERENTIATION	BIOCHEMISTRY	31,913	12.4	Q1
PLANT CELL	BIOCHEMISTRY	68,851	11.6	Q1
EMBO JOURNAL	BIOCHEMISTRY	70,290	11.4	Q1
LEUKEMIA	ONCOLOGY	33,595	11.4	Q1
CANCER RESEARCH	ONCOLOGY	141,481	11.2	Q1
BIOCHIMICA BIOPHYSICA ACTA-Rev Can	BIOCHEMISTRY	9303	11.2	Q1
EMBO MOLECULAR MEDICINE	MEDICINE	12,845	11.1	Q1
PNAS-USA	MULTIDISCIPLIN	788,686	11.1	Q1
CARDIOVASCULAR RESEARCH	CARDIAC	28,181	10.8	Q1
GENES & DEVELOPMENT	CELL BIOLOGY	54,132	10.5	Q1
JNCI-JOURNAL NATIONAL CANCER INST	ONCOLOGY	38,065	10.3	Q1
PLOS BIOLOGY	BIOCHEMISTRY	41,783	9.8	Q1
CURRENT BIOLOGY	CELL BIOLOGY	79,963	9.2	Q1
CELL DEATH DISEASE	CELL BIOLOGY	58,493	9.0	Q1
CELL REPORTS	CELL BIOLOGY	93,064	8.8	Q1
BRITISH JOURNAL OF CANCER	ONCOLOGY	53,689	8.8	Q1
ONCOGENE	BIOCHEMISTRY	74,751	8.0	Q1
PROTEIN SCIENCE	BIOCHEMISTRY	18,981	8.0	Q1
AGING CELL	CELL BIOLOGY	16,286	7.8	Q1
EMBO REPORTS	BIOCHEMISTRY	20,656	7.7	Q1
SCIENCE SIGNALING	BIOCHEMISTRY	15,716	7.3	Q1
CELL DEATH DISCOVERY	CELL BIOLOGY	6501	7.0	Q2
MOLECULAR ONCOLOGY	ONCOLOGY	10,372	6.6	Q1
ONCOGENESIS	ONCOLOGY	4453	6.2	Q1
BIOCHIMICA BIOPHYSICA ACTA-Mo Ba Di	BIOCHEMISTRY	21,020	6.2	Q1
BIOLOGY DIRECT	BIOLOGY	2.372	5.5	Q1
FEBS JOURNAL	BIOCHEMISTRY	25,626	5.4	Q2
MOLECULAR AND CELLULAR BIOLOGY	BIOCHEMISTRY	48,740	5.3	Q2

Table 4. continued

JIF relative ranking				
Impact factors 2022				
Journal	**Category**	**Citations**	**2022 JIF**	**Quartile**
FASEB JOURNAL	BIOCHEMISTRY	54,965	4.8	Q2
JOURNAL OF BIOLOGICAL CHEMISTRY	BIOCHEMISTRY	336,186	4.8	Q2
CELL CYCLE	CELL BIOLOGY	19,080	4.3	Q2
BIOCHEMICAL JOURNAL	BIOCHEMISTRY	45,474	4.1	Q2
ACS CHEMICAL BIOLOGY	BIOCHEMISTRY	16,274	4.0	Q2
JOURNAL OF CELL SCIENCE	CELL BIOLOGY	44,177	4.0	Q3
JOURNAL OF CANCER	ONCOLOGY	14,669	3.9	Q2
BIOCHEMICAL SOCIETY TRANSACTIONS	BIOCHEMISTRY	14,713	3.9	Q2
FEBS LETTERS	BIOCHEMISTRY	46,066	3.5	Q3
FREE RADICAL RESEARCH	BIOCHEMISTRY	8443	3.3	Q3
BIOCHEMICAL BIOPHYS RES COMMS	BIOCHEMISTRY	97,842	3.1	Q3
BIOCHEMISTRY	BIOCHEMISTRY	65,857	2.9	Q3
BIOLOGY OF THE CELL	CELL BIOLOGY	2,248	2.7	Q4

Although science needs "impact", not "impact factors", a common representative ranking is indeed published by Clarivate, here reported in the last June 2023 report. It clearly shows the quality of CDD and its sister journals, compared to well established journals.

Suzhou, China, to celebrate the 40th anniversary of a landmark event: the cloning of the T Cell Receptor (TCR). Indeed, in a few months it will be 40 years since the identification and cloning of the TCR. The hunt for the gene encoding the TCR, "*The Holy Grail*" of immunology, was a long and difficult task solved by Mak [3] and Davis [4], that then paved the way for numerous pivotal advancements, including CAR-T cell therapy [5]. Although CDD has published few papers on an active ancient and physiological cell death mechanism - the killing by cytotoxic T cells (Tc) of infected targets - largely because of the many established and specialized immunological journals - the cloning of the TCR was an enormous step towards understanding and eventually manipulating this process. With further recent developments in how Tc may also kill autologous cancer cells, we may start persuading our Tc (CAR-T, TCR-T) to eliminate breast or prostate cancer without the need for surgery and radiotherapy, and even to eliminate autoreactive immune cells that cause autoimmune diseases. Finally, we also hope to celebrate the identification of Bcl-2, 40 years ago. More meetings as well as reviews and individual celebrations will be organized by several editors to highlight crucial work performed in the last 30 years of science.

The *ikigai* for CDD, since its first conception, has been the advancement of quality science. This is something that gives CDD a sense of purpose, a reason for living, and a commitment to serving both authors and readers. On this, it has been a unique privilege for us to interact with excellent scientists, helping them to tackle complex problems, to navigate unchartered waters. The *primu movens* was cell death, but in time, the scope became broader, well integrated in the broader domain of cell biology, Fig. 2. Indeed, it was a unique fantastic privilege to witness, engage, and contribute to a forum of discussion to the golden age of programmed cell death, Fig. 3. Over time, the realization emerged that a single journal was not enough, said D, so GDM decided that it was time to move from basic science into disease. And here we said, let's go with a sister journal. But then two were not sufficient, and GDM went into the third journal, thinking that the time was ready for pharmaceutical discovery. Now, although some initial questions are still debated, Fig. 4, all three journals, are flourishing and progressing with about eight thousand submissions annually. In the last 30 years, significant papers have been published, Tables 1–3, bringing all three journals at a respected standing, well ranked among classic biomedical journals, Table 4. Since our early days we liked to say that CDD*press*, encapsulating all three journals, is where the "*the impact is a fact, not a factor*".

Throughout the years, CDD has been the platform for numerous landmark publications, impossible to remember all. The first description of caspase 14 was originally reported by Peter Vandenabeele [6]. Juerg Tschopp – whose contributions are now celebrated with a dedicated CDD prize, defined the molecular mechanisms underlying the activation of the NALP3 inflammasome, influenced by low intracellular potassium concentration [7]. The identification of the tumorigenic population that sustains lung cancer contributes significantly to the molecular understanding and development of effective therapies [8]. Later on, Gibson defined the role of superoxide in autophagy [9]. Accordingly, autophagy formation as a cellular defence mechanism against polyQ72-inducing ER-stress-mediated cell death by degrading polyQ72 aggregates involves PERK/eIF2α phosphorylation inducing LC3 conversion [10]. Aaron Ciechanover, in collaboration Gerry Cohen, presented some of their always pivotal work on proteolysis [11]. Doug Green also has been a regular afficionado, reporting several exciting data on mitochondrial membrane permeabilization [12, 13]. More recently Andreas Strasser reported several significant findings work on lymphomagenesis [14–16]. While space constraints prevent us from acknowledging each contributor individually, we sincerely apologize for not providing the deserved tribute to all other landmark discoveries and their authors.

These interactions in the scientific community allowed the establishment of two prestigious awards. Both Prizes recognize active investigators who have conducted innovative, paradigm-shifting research that is worthy of significant and broad attention in the broader field of cell death and who have the capacity to transform our field. The CDD AWARD recipients include Andreas STRASSER (2015), Tak Wah MAK (2016), Shige NAGATA (2017), Karen VOUSDEN (2018), Carol PRIVES (2019), Arnie LEVINE (2020), Ivan DIKIC (2021), Marie HARDWICK (2022), Charles SWANTON (2023) and Junying YUAN (2024). The CDD Jurg Tschopp PRIZE was awarded to Fabio MARTINON (2015), Peter VANDENABEELE (2016), Doug GREEN (2017), Vishva DIXIT (2018), Xiaodong WANG (2019), David VAUX (2020), Peter Heinrich KRAMMER (2021),

Klaus-Michael DEBATIN (2022), Manolis PASPARAKIS (2023) and Brent R. STOCKWELL (2024).

Reflecting on our past achievements, we now turn our gaze to the horizon, but what is next? The landscape science and consequently scientific communication is rapidly evolving. From the steam engine approach of 30 years ago, new challenges at a breakneck speed are ahead. The pace is even accelerating. These challenges include for example AI, virtual science, rapidity of discovery, opening of scientific communities in the east such as in China and India, social media, data sharing and accessibility, and, finally, the pervasive threat of misinformation. We need to develop together new approaches and integration among journal staff, editorial board members, advisors, reviewers and, most important, authors and readers. In fact the journal exists for you, and we hope the new CDD will be your voice. Whilst we owe a huge thank to our staff and collaborators, without who the journal would have never been so successful, our future commitment is for authors and readers.

This anniversary is not just a celebration of our successful past, but a pledge for a future filled with commitment and innovation.

So far, it has been a great journey.

We owe a huge thanks!

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REFERENCES

1. Linzer DI, Levine AJ. Characterization of a 54K dalton cellular SV40 tumor antigen present in SV40-transformed cells and uninfected embryonal carcinoma cells. Cell. 1979;17:43–52.
2. Lane DP, Crawford LV. T antigen is bound to a host protein in SV40-transformed cells. Nature. 1979;278:261–3.
3. Yanagi Y, Yoshikai Y, Leggett K, Clark SP, Aleksander I, Mak TW. A human T cell-specific cDNA clone encodes a protein having extensive homology to immunoglobulin chains. Nature. 1984;308:145–9.
4. Hedrick SM, Cohen DI, Nielsen EA, Davis MM. Isolation of cDNA clones encoding T cell-specific membrane-associated proteins. Nature. 1984;308:149–53.
5. Gross G, Waks T, Eshhar Z. Expression of immunoglobulin-T-cell receptor chimeric molecules as functional receptors with antibody-type specificity. Proc Natl Acad Sci USA. 1989;86:10024–8.
6. Van de Craen M, Van Loo G, Pype S, Van Criekinge W, Van den brande I, Molemans F, et al. Identification of a new caspase homologue: caspase-14. Cell Death Differ. 1998;5:838–46.
7. Pétrilli V, Papin S, Dostert C, Mayor A, Martinon F, Tschopp J. Activation of the NALP3 inflammasome is triggered by low intracellular potassium concentration. Cell Death Differ. 2007;14:1583–9.
8. Eramo A, Lotti F, Sette G, Pilozzi E, Biffoni M, Di Virgilio A, et al. Identification and expansion of the tumorigenic lung cancer stem cell population. Cell Death Differ. 2008;15:504–14.
9. Chen Y, Azad MB, Gibson SB. Superoxide is the major reactive oxygen species regulating autophagy. Cell Death Differ. 2009;16:1040–52.
10. Kouroku Y, Fujita E, Tanida I, Ueno T, Isoai A, Kumagai H, et al. ER stress (PERK/eIF2alpha phosphorylation) mediates the polyglutamine-induced LC3 conversion, an essential step for autophagy formation. Cell Death Differ. 2007;14:230–9.
11. Craxton A, Butterworth M, Harper N, Fairall L, Schwabe J, Ciechanover A, et al. NOXA, a sensor of proteasome integrity, is degraded by 26S proteasomes by an ubiquitin-independent pathway that is blocked by MCL-1. Cell Death Differ. 2012;19:1424–34.
12. Waterhouse NJ, Sedelies KA, Sutton VR, Pinkoski MJ, Thia KY, Johnstone R, et al. Functional dissociation of DeltaPsim and cytochrome c release defines the contribution of mitochondria upstream of caspase activation during granzyme B-induced apoptosis. Cell Death Differ. 2006;13:607–18.
13. Quarato G, Llambi F, Guy CS, Min J, Actis M, Sun H, et al. Ca2+-mediated mitochondrial inner membrane permeabilization induces cell death independently of Bax and Bak. Cell Death Differ. 2022;29:1318–34.
14. Potts MA, Mizutani S, Garnham AL, Li Wai Suen CSN, Kueh AJ, Tai L, et al. Deletion of the transcriptional regulator TFAP4 accelerates c-MYC-driven lymphomagenesis. Cell Death Differ. 2023;30:1447–56.
15. Diepstraten ST, Young S, La Marca JE, Wang Z, Kluck RM, Strasser A, et al. Lymphoma cells lacking pro-apoptotic BAX are highly resistant to BH3-mimetics targeting pro-survival MCL-1 but retain sensitivity to conventional DNA-damaging drugs. Cell Death Differ. 2023;30:1005–17.
16. El-Saafin F, Bergamasco MI, Chen Y, May RE, Esakky P, Hediyeh-Zadeh S, et al. Loss of TAF8 causes TFIID dysfunction and p53-mediated apoptotic neuronal cell death. Cell Death Differ. 2022;29:1013–27.
17. Green DR, Knight RA, Melino G, Finazzi-Agro' A, Orrenius S. Ten years of publication in cell death. Cell Death Differ. 2004;11:2–3.
18. Melino G, Knight RA, Green DR. Publications in cell death: the golden age. Cell Death Differ. 2001;8:1–3.
19. Melino G. The Sirens' song. Nature. 2001;412:23.
20. Vitale I, Pietrocola F, Guilbaud E, Aaronson SA, Abrams JM, Adam D, et al. Apoptotic cell death in disease-Current understanding of the NCCD 2023. Cell Death Differ. 2023;30:1097–154.

ACKNOWLEDGEMENTS

The authors thank Dr. Vicky Johnson (Wiley) for supplying the data via Keyword Plus Cloud for figure, and Dr. Ivano Amelio for helpful and constructive criticisms.

AUTHOR CONTRIBUTIONS

All co-authors conceived the project, and wrote the manuscript.

COMPETING INTERESTS

The authors declare that they are all members of the Editorial Board of the journal Cell Death Differentiation. The authors declare no other competing interests.