

Rita Levi-Montalcini

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She did not want to leave Italy; much less be far away from her family members. Relieved of duties at the University of Turin, she went to Belgium in 1939 for a brief period of time; she came back, searched for refuge in Switzerland, but was not able to cross the border. She stopped in Florence under the false name of Lupani; she finally returned to Turin in the summer of 1945. Two years later, she was given the opportunity to work on her research at Washington University, and henceforth departed for St. Louis. It was the «logical consequence» of racial politics, considering that in Italy she still did not have a position at the age of thirty-eight. The United States did not want to lose such a talent: she was supposed to stay for six months and instead remained for thirty years, receiving the Nobel Prize in medicine in 1986 with Stanley Cohen.

Family

She was born in Turin on 22 April 1909 to a family of Sephardic Jews of the Piedmont region. Her father, Adamo Levi (1867-1932), trained in engineering, was an industrialist; her mother, Adele (Adelina) Montalcini, was a painter. Rita spent her childhood and youth in Turin with her parents and siblings: Gino (Luigi), seven years her elder and later a renowned architect and sculptor; Anna, nicknamed Nina, born in 1904; and Paola, Rita's twin sister, who became a recognized painter. The twin sisters attended a women's high school together,¹ at the end of which time Paola dedicated herself to painting

¹ Scuola superiore femminile Margherita di Savoia of Turin. Women's high schools were instituted in Italy with the Gentile Reform, RD 6 May 1923, n. 1054, *Ordinamento della istruzione media e dei convitti nazionali*, art. 65: «Women's high schools aim to impart general cultural knowledge to young women who do not aspire either to higher education or to a professional diploma». The course of study lasted three years, at the end of which time a State Exam was not administered as it was instead the norm in classical high schools (ginnasio) and scientific high schools, but students obtained a diploma that could not be used at the professional level

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full-time, joining the workshop of Felice Casorati. For Rita, instead, a period of reflection and postponement began, which ended four years later in the fall of 1930, with her enrolment in the Facoltà di Medicina [School of Medicine] at the University of Turin². Since it was not possible to enrol in university-level courses with a women's high school diploma, she once again took to high school studies and prepared for exams privately along with her cousin, Eugenia, with whom she would come to share her course of study in medicine³.

The Thirties at the university

In 1931, Levi-Montalcini joined, as a new intern, the Institute of Human Anatomy directed by Professor Giuseppe Levi, whom Rita defined then as «a master and a father»⁴ and with whom she established a relationship of respect, friendship, and collaboration that lasted until Levi's death in 1965. Along with her, and among the enrolled students at the institute, were her cousin Eugenia, Salvatore (later Salvador) Luria (recipient of the Nobel Prize in medicine in 1969), Renato Dulbecco (Nobel Prize recipient in 1975), Gigi Magri, Cornelio Fazio, and Rodolfo Amprino. Professor Levi taught her the technique necessary to grow cultures of animal cells in vitro, which he was the first to introduce in Italy, and that Levi-Montalcini would use again twenty years later to discover the nature of nerve growth factor.

In August of 1932, her father, Adamo, died. In 1934, one of Professor Giuseppe Levi's children was stopped at the border of Switzerland along with Sion Segre, a student at the Institute of Human Anatomy and a classmate of

and did not permit enrolment in universities.

² The decision to study medicine was strongly influenced by the sickness and death of Giovanna Bruato in 1929, her beloved governess.

³ See Rita Levi-Montalcini, Eugenia Sacerdote, *Le ricerche quantitative sul sistema di mus musculus*, «Monitore zoologico italiano», 53, 1934, pp. 162-172. Rita Levi-Montalcini, Eugenia Sacerdote, *Formazione di fibrille reticolari e collagene in colture di epiteli e di elementi miocardici*, «Monitore zoologico italiano», 47, 1936, pp. 309-318.

⁴ Rita Levi-Montalcini, *In Praise of Imperfection. My Life and Work*, trans. Luigi Attardi, New York, Basic Books, 1988, p. 202. [TN: The original Italian edition was published in 1987 with the title, *Elogio dell'imperfezione*. All references hereafter are to the English edition.]

Rita's. Found with antifascist propaganda material, Sion was arrested, while Mario Levi was able to escape to Switzerland. Levi's house was searched and the professor was placed under arrest for fifteen to twenty days. Upon Sion's return to the laboratory, Luria commented to Rita: «We were living next to a historical figure and hadn't even realized it»⁵.

Having obtained her degree on 24 July 1936, with *110 e lode* [first-class honors] and *dignità di stampa* [a recommendation for publication] for her thesis entitled «Ricerche sulla formazione in vitro di fibrille collagene e reticolari da espunti di vari organi» [Researches into the in vitro formation of collagen and reticular fibrils from explants of various organs],⁶ Levi-Montalcini obtained her licence to practice the medical profession in Parma in the fall session of 1936⁷.

In 1938, when the racial laws were issued, Rita was perfecting her studies in neuropathology and psychiatry, and she was an *assistente volontaria* [unpaid assistant] by rectorial appointment within the Clinic for nervous-system and mental diseases, directed at the time by the distinguished Ernesto Lugaro⁸. As set forth by the law, she was permitted to continue her studies for her specialization, which she completed in 1939, but was suspended from her duties as assistant⁹. Within the clinic, a young Southern lab assistant «displayed violent adversity to the regime and its anti-Semitic measures», but he was not to be trusted given the very high «percentage of OVRA [...] informers and provocateurs [who] had infiltrated at all levels [...]. Among the regime's repressive maneuverings, this universal suspicion polluting all

⁵ Ibid., p. 77.

⁶ ASUTo, record of degrees of the Facoltà di Medicina e Chirurgia [School of Medicine and Surgery], year 1936.

⁷ ASUTo, f. «Rita Levi», letter from professor Ernesto Lugaro to rector Azzo Azzi, 21 December 1937.

⁸ Appointment as assistant with an effective date of 1 January 1938; see *ibid.*, letter from A. Azzi to E. Lugaro with the subject line «Dott. Rita Levi = nomina ad assistente volontaria», 29 February 1938. See also R. Levi-Montalcini, *In Praise of Imperfection*, *cit.*, pp. 83-84 and p. 111.

⁹ ASUTo, f. «Rita Levi», letter of discharge with an effective date of 14 December 1938, 5 December 1938, under article 8 of RDL 15 November 1938, n. 1779, *Integrazione e coordinamento in unico testo delle norme già emanate per la difesa della razza nella Scuola italiana*.

relationships, which is common to all totalitarian systems, was one of the very worst », observed Levi-Montalcini¹⁰.

The results of her research on the relation between structural and functional differentiation of neural centers and pathways in a chicken embryo, which she had conducted at the clinic with Fabio Visintini, could not be published in the Italian scientific periodicals because «they were no longer allowed to publish articles by anyone who was Jewish». They were ultimately published in a Swiss journal¹¹.

From Turin to Brussels and back

Professor Léon Laruelle invited Levi-Montalcini to continue her research at the Institute of Neurology that he directed in Brussels. In March of 1939, Rita accepted. Her cousins Eugenia Sacerdote and Gisella Levi, both a year younger than her, went farther away: Eugenia to Argentina and Gisella, who had graduated with a degree in physics in 1934, from France went to the United States¹². Rita knew that in Belgium, she would reconnect with her teacher, who had also been expelled from the University of Turin due to «his Jewish race». Giuseppe Levi worked at Jean Firket's Institute of Pathological Anatomy in Liège, and on the weekends, Rita travelled between the two cities to pay him visits and compare findings on their research. Anna, Rita's older sister, was also in Belgium with her husband and her children, in order to escape racial persecution. At the end of August 1939, Rita departed for Denmark to participate in a conference. She was in Copenhagen when on 12 September:

¹⁰ R. Levi-Montalcini, *In Praise of Imperfection*, cit., pp. 84-85.

¹¹ Ibid., p. 84. Fabio Visintini, Rita Levi-Montalcini, *Relazione tra differenziazione strutturale e funzionale dei centri e delle vie nervose nell'embrione di pollo*, «Archives Suisses de Neurologie et de Psychiatrie», 43, 1939, pp. 1-45.

¹² Eugenia Sacerdote de Lustig (1910-2011), who emigrated with her family to Argentina, became a lecturer in cellular biology at the University of Buenos Aires. Gisella Levi (1910-2003), who graduated with a degree in physics from the University of Turin in 1934, emigrated to Paris in November of 1938 and then - in March of 1939 - to the United States where she married the sociologist Werner Cahnman and worked as a biophysicist.

we were surprised and horrified by the news of the invasion of Poland. It was the beginning of the Second World War. Aboard one of the last ships taking civilians, I returned to Brussels. Later, in December, foreseeing the imminence of the German invasion, I decided to return to Italy, along with my sister Nina and her family, by car across a France mobilizing for war¹³.

Attempts at escape

With the impossibility of resuming her research activities, Rita tried to practice the medical profession, but for drug prescriptions and for signatures on prescription notes, she always had to call upon «Aryan» doctors, so much so that she abandoned this line of work¹⁴. In the fall of 1940 - she recounted in her autobiography - she set up a laboratory in her own bedroom and, urged onward by her former classmate Rodolfo Amprino, she resumed her research in an autonomous manner: during a train ride, she had read a research article published in 1934 by Viktor Hamburger, a pupil of Spemann (winner of the Nobel Prize in medicine in 1935). Eager to explore this further, she began to analyze the effect of the peripheral areas on the differentiation of motor cells in the spinal cord and of the sensory cells in the spinal ganglia of chicken embryos. Professor Levi, who had returned from Nazi-occupied Belgium, also joined her in this research in the fall of 1941. Teacher and pupil worked together until the fall of 1942, when, due to bombardments, they were forced to evacuate Turin. Rita took refuge with her family in the countryside of Asti and there proceeded with her research. After 8 September 1943, «[knowing] that a delay of days, perhaps even of hours, might cost [them their] lives»,¹⁵ Rita and her family members evaluated different possibilities: «to stay in Piedmont; to try crossing into Switzerland; or to take the chance of heading south in the hope of early liberation at the

¹³ R. Levi-Montalcini, *In Praise of Imperfection*, cit., p. 87. [TN: A curious discrepancy exists between the Italian original and the English translation of Levi-Montalcini's autobiography. According to the English edition, Levi-Montalcini was at a conference in Stockholm, Sweden, not in Copenhagen, Denmark, when the news of the German invasion of Poland reached her.]

¹⁴ Ibid., p. 88.

¹⁵ Ibid., p. 100.

hands of the British and Americans»¹⁶. They decided on Switzerland, but they were not successful in crossing the border at Porto Ceresio on Lake Lugano; only Rita's older sister Anna and her husband and children succeeded later on at a different border crossing. Rita and Paola instead, together with their mother Adelina, their brother Gino, and their sister-in-law Maria, turned back to try and reach the south of Italy. The escape to Switzerland represented, for the entire family, the first true attempt to leave the country; based on what Montalcini would later recount, Gino and Paola were against moving to the United States: particularly attached to Italy, they wanted to believe in the defeat of Nazi-Fascism¹⁷.

In hiding

Immediately thereafter, we set about the last of the options we had considered: taking our chances and moving south. [...] Our destination was the outcome of chance. In the carriage in which we were traveling, I found myself face to face with a young officer, a fellow student from university days, who recognized me and asked where we were heading. His Fascist uniform and his question increased my embarrassment: I couldn't let him in on the fact that we didn't know where we were going. I told him that in our hurry we had boarded on the wrong train and would therefore be getting off at the next station. We were happy to find that it was Santa Maria Novella in Florence¹⁸.

They arrived in Florence on 8 October 1943. That trip, full of uncertainties, left a deep mark in Rita; many years later, while she was conducting her research at the Institute of Biophysics in Rio de Janeiro, she recalled those hesitations and fears in a letter to her mother and her sister Paola:

Rio de Janeiro, 7 October 1952

[...] I think back to 7 October 1943, nine years ago. Do you remember? Departure from Casale, Alessandria. Dinner in Genoa. Melancholic walk through the deserted streets of the city. Did they realize at the hotel that our identification cards didn't have the dry

16 Ibid.

17 Ibid., p. 90.

18 Ibid., p. 101.

seal? No, they didn't notice it at the hotel. Departure for Florence. To get off in Florence at five in the morning or to continue on to Rome? It all depends on whether our friends will or will not be at the station. But how do our friends know that we are there, since the trains come and go without any schedule, and the train that should have arrived in the evening arrives at five o'clock in the morning? In any case, we did not even let them know that we are about to arrive. Even so, we have to get off to cover up our tracks from the man in the light-grey waistcoat, who probably has understood everything about us and will denounce us. [...] The rain, the mud of Florence... I think back to all this, gazing at the shimmering sea and the bunches of bananas just a few meters from my window¹⁹.

In Florence, thanks to the help of Marisa Mori (a well-known painter and a friend of Paola's), they found an accommodation in the boarding house of Mrs. Concilia Leoncini, at Via Cavour 84²⁰. Rita's brother Gino and his wife settled down not far away, with the fake last name of Locatelli; their first son, Emanuele, was born on 29 May 1944 in Florence. The false last name chosen by Rita, and by her mother and twin sister Paola, was instead Lupani. In her autobiography, the scientist remembers how she tried to resume her studies, asking to be able to attend the neurological clinic «incognito», but the director, alarmed by the possible consequences, did not consent²¹. In the spring of 1944, Giuseppe Levi also arrived in Florence, reaching some of his family members. The professor asked Rita to collaborate on the revision of his *Trattato di Istologia* [Treatise on Histology], first published in 1927 and already revised in 1935.

With the liberation of the city on 11 August 1944, Levi-Montalcini obtained the Red Cross doctor badge from the Allied health services, and looked to make herself useful in a camp for evacuees alongside Alberto Levi, Professor Levi's son and a former classmate of hers in medical school. When an epidemic of abdominal typhoid fever broke out in the camp and the refugees began to die in the hundreds, Rita felt powerless. As she would later

¹⁹ Rita Levi-Montalcini, *Cantico di una vita*, Milan, Raffaello Cortina Editore, 2013, pp. 81-82.

²⁰ Letter from Rita and Paola Levi-Montalcini to Consilia Leoncini, May 1946 <<http://moked.it>> (accessed 18 January 2019).

²¹ R. Levi-Montalcini, *In Praise of Imperfection*, cit., p. 102.

acknowledge, she understood that she did not possess the emotional detachment necessary to perform the job of a doctor in the best way. Hence she chose, in the years to come, to dedicate herself completely to research.

In Turin again

In the summer of 1945, she returned to her hometown. She was not reintegrated in her position at the university Clinic for nervous-system and mental diseases. But Professor Levi, reinstated into his professorship at the University of Turin, offered her a position as an assistant at the Clinic for the study of growth and ageing of organisms, to which Levi had been appointed as director by the *Consiglio nazionale delle ricerche* [National Council of Research, abbreviated CNR in Italian]²². Rita accepted and stayed there for two years, with a brief interval from 3 September to 15 November 1946, which she spent at the Stazione Zoologica of Naples with funding from the CNR. She devoted herself, with the usual level of dedication, to research on neuroembryology together with Rodolfo Amprino. Nevertheless, she felt that «the situation [...] was radically different» and she was not satisfied²³.

For a period of time, Renato Dulbecco also worked at the same Center. He had received a research grant in 1947 - at the suggestion of Rita herself - from his former classmate Salvador Luria, who at the time was a renowned professor at Indiana University, Bloomington: another two Italians - later naturalized Americans - who would be honored with the Nobel Prize.

Six months that would become thirty years in the United States

In 1942 and 1943, Rita and Professor Levi published in the journal «Archives de Biologie» the results of the research that they had conducted on chicken

²² ASUTo, f. «Rita Levi», letter from Giuseppe Levi to the rector Mario Allara, 19 February 1946.

²³ R. Levi-Montalcini, *In Praise of Imperfection*, cit., p. 111. On the time spent in Naples, see Annalisa Capristo, *L'impatto delle leggi del 1938 sulla comunità scientifica italiana*, in Francesco Bello (ed.), *Bruno Zevi intellettuale di confine*, Rome, Viella, 2019, pp. 96-97.

embryos²⁴. Professor Viktor Hamburger of Washington University at Saint Louis, whose article encouraged Rita to repeat the same research in her home laboratory, invited her to continue her studies on the matter together. Levi-Montalcini departed in September 1947 with a fellowship from the Rockefeller Foundation and the idea of remaining in the United States for a semester or a year at the most²⁵.

She embarked at Genoa on 19 September 1947. On the same ship was Dulbecco, headed to Bloomington, who «had decided - if the right occasion presented itself - to settle down in the States, and was planning to have his wife and two children, whom he had left in Turin, join him»²⁶. Rita considered this possibility impractical for herself. Convinced that neither her mother nor her sister Paola would ever take into consideration the idea of moving to the United States, she thought about returning to Italy after a few months; but her «stay on the other side of the ocean lasted - though with long intervals - for thirty years»²⁷.

It was clear to her that her academic escape, though in the postwar period, was a «logical consequence» of the regime's racist politics. She wrote in the summer of 1948 to her mother and her sister Paola:

St. Louis, 15 June 1948

[...] Writing the date, I realize that today is the tenth anniversary of the racial manifesto that appeared the morning of 15 June 1938 in block letters in our «beautiful» newspapers, and this was the beginning of our Kafkaesque trial. And if today, 15 June 1948, I am here, it is nothing but the logical consequence of the change in

24 Rita Levi-Montalcini, Giuseppe Levi, *Les conséquences de la destruction d'un territoire d'innervation périphérique sur le développement des centres nerveux correspondant dans l'embryon de poulet*, «Archives de Biologie», 53, 1942, pp. 537-545. Rita Levi-Montalcini, Giuseppe Levi, *Recherches quantitatives sur la marche du processus de différenciation des neurones dans les ganglions spinaux de l'embryon de poulet*, «Archives de Biologie», 54, 1943, pp. 189-206.

25 ASUTo, f. «Rita Levi», letter from G. Levi to rector M. Allara, «Proposta di sostituzione temporanea per un anno della dott.ssa Rita Levi-Montalcini con il dott. Michele Torre», 26 November 1947. See also R. Levi-Montalcini, *In Praise of Imperfection*, cit., p. 111 and p. 122, and a letter from Rita Levi-Montalcini to the Leoncini family, January 1947 <<http://moked.it>> (accessed 18 January 2019).

26 R. Levi-Montalcini, *In Praise of Imperfection*, cit., p. 117.

27 Ibid., p. 122.

course that began on 15 June 1938. A milestone of my own little diaspora that I suppose the signatories of the manifesto themselves would envy me for²⁸.

At Washington University, where she would become full professor in March of 1959, Rita proceeded with her research: she transplanted fragments of special tumors into chicken embryos and, observing the effects of the grafts on the sensory ganglia, she deduced from it that a chemical factor, released from the host tissue, had an active effect on the development of neurons. She then decided to further analyze the findings utilizing the in vitro culture method that she had learned from her mentor in her university years. She asked the help of her friend and colleague Herta Meyer, who had been assistant to Levi in Turin and who, having moved to Rio de Janeiro due to the racial laws, had set up an in vitro culture unit at the Institute of biophysics there directed by Carlos Chagas. Rita left for Rio de Janeiro in September of 1952 with a traveller grant for travel expenses from the Rockefeller Foundation, and returned to St. Louis in the winter of 1953.

Encouraged by the positive results obtained in Rio de Janeiro, Rita and Viktor Hamburger asked the young biochemist Stanley Cohen to join them in their research: «he has [...] an intelligent face and a reserved and non-aggressive demeanor [...]. I hope that we'll get along and do something together». They were a «pure-blood team», Hamburger used to say: all three of Jewish descent²⁹.

Thanks to the collaboration with Stanley, who worked with Rita until July of 1959, and that of the young Italian physician Pietro Angeletti (called to substitute Cohen when he transferred to the University of Tennessee), the mechanisms of cellular growth and differentiation of a protein-based tumor molecule, designated as Nerve Growth Factor (NGF), became increasingly

²⁸ R. Levi-Montalcini, *Cantico di una vita*, cit., p. 21. There is a mistake in her recollection of the date: the anonymous article entitled *Il fascismo e i problemi della razza*, better-known as *Il Manifesto degli scienziati razzisti* or *Manifesto della Razza*, was published in reality in the newspaper «Il Giornale d'Italia» on 14 July 1938.

²⁹ Ibid., pp. 94-95, from a letter dated 11 February 1953 to her mother and her sister Paola.

clear. This research would lead Rita Levi-Montalcini and Stanley Cohen to win the Nobel Prize for medicine in 1986.

Honored with the highest recognition for her research, while at the 12th Congress of the Union of Jewish-Italian Communities in Rome on 16 November 1986, she did not fail to remember that which many wanted to forget:

«Of the Semites, who over the course of the centuries have arrived on the sacred soil of our homeland, nothing on the whole has remained»

Thus was defined, in the ninth paragraph of the manifesto of Italian racism - conceived by Mussolini but signed and therefore endorsed by ten «Italian scientists», published on 14 July 1938 - the work of hundreds of thousands of Jews who, from the third century B.C. to current times, have shared with hundreds of millions of individuals defined by governmental decree of the Aryan race, the good and the bad fate of our Country³⁰.

Between two continents

In the spring of 1961, Rita returned to Italy to establish a research group on the NGF in Rome in collaboration with Washington University, a project funded by the National Science Foundation and subsidized in part by the CNR. The director of the biological chemistry laboratories of the *Istituto superiore di sanità* [Italian National Institute of Health] offered his site and equipment for research, which was conducted simultaneously with the Department of Biology at Washington University.

Aware of Rita Levi-Montalcini's project to attempt a return to Italy [...] Marini Bettolo made a particularly intelligent and generous move [...] overcoming notable logistical difficulties - economic and political - he was able to offer Rita Levi-Montalcini some space in the Institute. This allowed her, and an early group of young researchers, to promptly commence her research activities in Italy - research that mended the rift left by the infamous racial laws of 1938 - beginning to remedy that extension sine die of her work stay in the United States, which had started during the second world war and was the inevitable

³⁰ Rita Levi-Montalcini, *Storia-pensiero-azione, Prolusione del Premio Nobel Rita Levi-Montalcini all'apertura del XII Congresso dell'Unione*, «La Rassegna mensile di Israel», 52, 1, 1986, pp. 13-23. The scientist decided to donate part of the proceeds from her Nobel Prize to the *Comunità ebraica di Roma* [the Jewish Community of Rome].

consequence of the unavailability of adequate working conditions in Italy³¹.

Thus started Rita's «commuter life» between two continents, divided between two laboratories and aided by Pietro Angeletti, who alternated the direction of research with her in Saint Louis for one part of the year and in Rome for the other. The studies and the experiments proceeded thanks to a group of talented scientists and collaborators, among them Vincenzo Bocchini, Pietro Calissano, and Luigi Aloe.

In the fall of 1963, her mother Adele died, and her sister Paola moved to Rome. In 1969, the CNR appointed Rita as director of the Laboratory of Cellular Biology, where she worked until 1979. Officially, due to age limits, she continued to research in the laboratory as a guest professor; for her (and for Dulbecco) the CNR created the title of «super-expert», and in 1988, she assigned the direction of the new Institute of Research in Neurobiology to her pupil, Pietro Calissano.

In Rome until 103 years-old

In the 1990s, she held the position of president of the Institute of the Italian Encyclopedia, and in 1995 she created the Rita Levi-Montalcini Foundation, a non-profit in support of the education of young African women; in 2001, at the age of ninety-two years-old, she founded the European Brain Research Institute (EBRI) and was appointed as senator for life by the president of the Italian republic, Carlo Azeglio Ciampi. A member of illustrious academies such as the Accademia dei Lincei, the Royal Society, the Accademia delle Scienze - in addition to being a Nobel Prize recipient - Rita Levi-Montalcini received numerous awards, honors, and honorary degrees.

She died in Rome on 30 December 2012 at the age of 103 years-old, keeping intact until the very end, as she herself told of her mentor Giuseppe Levi, «an

³¹ Giorgio Bignami, *L'Istituto Superiore di Sanità*, in Enrico Allevo, Paola De Castro, Mirella Taranto (eds.), *CuriosaMente. Ritratti inediti di Rita Levi-Montalcini*, Rome, Istituto superiore di sanità, 2009, pp. 50-51.

interest in research as an instrument for the understanding of nature and not as an object of competition and an instrument of power»³².

Major publications

- With Eugenia Sacerdote, *Le ricerche quantitative sul sistema di mus musculus*, «Monitore zoologico italiano», 53, 1934, pp. 162-172.
- With Eugenia Sacerdote, *Formazione di fibrille reticolari e collagene in colture di epiteli e di elementi miocardici*, «Monitore zoologico italiano», 47, 1936, pp. 309-318.
- With Fabio Visintini, *Relazione tra differenziazione strutturale e funzionale dei centri e delle vie nervose nell'embrione di pollo*, «Archives Suisses de Neurologie et de Psychiatrie», 43, 1939, pp. 1-45.
- With Giuseppe Levi, *Les conséquences de la destruction d'un territoire d'innervation périphérique sur le développement des centres nerveux correspondant dans l'embryon de poulet*, «Archives de Biologie», 53, 1942, pp. 537-545.
- With Giuseppe Levi, *Recherches quantitatives sur la marche du processus de différenciation des neurones dans les ganglions spinaux de l'embryon de poulet*, «Archives de Biologie», 54, 1943, pp. 189-206.
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- With Stanley Cohen, *A nerve growth-stimulating factor isolated from snake venom*, «Proceedings of the National Academy of Sciences», 42, 1956, pp. 571-574.
- With Pietro Angeletti and Giuseppe Moruzzi, *Il messaggio nervoso*, Milan, Rizzoli, 1975.
- *NGF: An Uncharted Route*, in F.G. Worden, J.P. Swazey, G. Adelman (eds.),

³² R. Levi-Montalcini, *In Praise of Imperfection*, cit., p. 205.

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- *Il tuo futuro. I consigli di un premio Nobel ai giovani*, Milan, Garzanti, 1993.
- *Senz'olio contro vento*, Milan, Baldini & Castoldi, 1996.
- *The Saga of the Nerve Growth Factor. Preliminary Studies, Discovery, Further Development*, Singapore, Ed. World Scientific, 1997.
- *L'asso nella manica a brandelli*, Milan, Baldini & Castoldi, 1998.
- *La galassia mente*, Milan, Baldini & Castoldi, 1999.
- *Cantico di una vita*, Milan, Raffaello Cortina Editore, 2000.
- *Un universo inquieto. Vita e opere di Paola Levi Montalcini*, Milan, Baldini Castoldi Dalai, 2001.
- *Tempo di mutamenti*, Milan, Baldini Castoldi Dalai, 2002.
- *Abbi il coraggio di conoscere*, Milan, Rizzoli, 2004.
- *Tempo di azione*, Milan, Baldini Castoldi Dalai, 2004.
- *I nuovi magellani nell'era digitale*, Milan, Rizzoli, 2006.
- *Tempo di revisione*, Milan, Baldini Castoldi Dalai, 2006.
- *Rita Levi-Montalcini racconta la scuola ai ragazzi*, Milan, Fabbri, 2007.

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