

Curriculum Vitae of Luigi Vezzulli

FIELDS OF SCIENTIFIC COMPETENCE, EDUCATION AND CAREER

Main fields of interest and competence

- 1) General and Environmental Microbiology
- 2) Marine Microbiology
- 3) Molecular Microbiology
- 4) *Vibrio cholerae* ecology and pathogenicity
- 5) Ecology and pathogenicity of vibrios associated to diseases in marine invertebrates
- 6) Microbial interactions
- 7) Climate change (ocean warming) and *Vibrio* species

Education, work experience and career

October 2014-present: Associate Professor in SSD BIO/19 “General Microbiology” at the University of Genoa, Genoa (IT).

Dec 2005-September 2014: University researcher in SSD BIO/19 “General Microbiology” at the University of Genoa, Genoa (IT).

April 2005-December 2005: Fellowship in Ecology (research in Microbial Ecology) at the Laboratory of Ecology (DIPTERIS), University of Genoa.

March 2003-March 2005: Post-doc position in SSD BIO/19 “General Microbiology” at the Laboratory of Microbiology (DIBISAA) of the University of Genoa.

November 2000-October 2003: PhD in Marine Sciences at the Laboratory of Ecology (DIPTERIS), University of Genoa. Thesis: Microbial bioremediation of fish-farm impacted marine sediments

February 2000-October 2000: Fellowships in Ecology (research in Microbial Ecology) at the Laboratory of Ecology (DIPTERIS), University of Genoa.

February 1999- January 2000: National Service, Cremona (IT)

April 1998-January 1999: Leonardo da Vinci studentship (from April 1998 to September 1998) and Part-Time position as a CPR plankton analyst (from September 1998 to January 1999) at the Sir Alister Hardy Foundation for Ocean Science (SAHFOS) (tutor: Prof Philip Chris Reid), Plymouth, England (UK).

1998 University degree (Laurea) 110/110 in Biological Sciences at the University of Ancona (Italy). Thesis: “Response of the bacterial community and analysis of organic matter in the Northern Adriatic frontal system: comparison between areas differently influenced by river input”.

1992: High School Diploma (Istituto Tecnico Agrario)

Visiting scientist experience

2005- Visiting scientist (May) at the Marine Molecular Microbiology & Biotechnology Group IAMC-CNR (tutor: Prof Michail Yakimov) (Messina, Italy) (research on molecular methods applied to the study of marine microbial communities).

2001- Visiting scientist (1 November to 30 December) at the School of Applied Biological and Chemical Sciences (Laboratory of Molecular Microbiology and Biotechnology) (tutor: Prof Ibrahim Banat), University of Ulster, Northern Ireland (UK) (research on microbial bioremediation of hydrocarbon-contaminated soils and organic rich sediments).

2000-2002-2003-2004-2010-2012-2013-2014-2105 Visiting scientist (from 1 week to 1 month) at the Sir Alister Hardy Foundation for Ocean Science (SAHFOS), Plymouth, England (UK) (research on the macroecology of plankton and associated vibrio populations)

RESEARCH

Research statistics

Total number of international publications (including publ in press) (period 2002-2016): 61

Number of publications authored as first name: 26

Number of publications authored as last name: 4

Total impact factor (SCI Journal Citation Reports 2013) = 182,6

H index Scopus = 22

Mean IF from 60 publications: 3,0

Research activity

The research activity of Luigi Vezzulli is mainly focused on the study of the biology and ecology of pathogenic bacteria belonging to the genus *Vibrio*. Research conducted in this field explored the mechanisms of persistence and survival strategies of *Vibrio* bacteria in the aquatic environment. Studies have shown that zooplankton and other aquatic organisms represent important environmental reservoirs and/or hosts of *V. cholerae* and other *Vibrio* species. In particular, research on molecular determinants that are responsible for *V. cholerae* interaction with environmental substrates highlighted the role of outer membrane proteins in mediating *V. cholerae* adhesion to chitin containing substrates. Special attention was given to N-acetyl glucosamine-binding protein A (GbpA) of *V. cholerae* which is involved in colonization of both human intestinal cells and environmental chitin surfaces via the same binding specificity. The *gbpA* gene is located in a non mobile region of chromosome II and was found ubiquitously in *V. cholerae*. The gene is also present in *V. vulnificus* and *V. parahaemolyticus* with conserved and species specific hypervariable regions. These properties make *gbpA* a good phylogenetic marker for human pathogenic *Vibrio* species and allowed the development of new molecular protocols for detection and quantification of *V. cholerae* in complex environmental matrices (including historical formalin-fixed environmental samples). Studies on GbpA showed that this ligand plays an important role in *V. cholerae* interaction with its main environmental reservoirs in coastal water (e.g. copepods). Moreover, due to the upregulation exerted by temperature on its expression, GbpA is likely to contribute to the enhanced *V. cholerae* colonization capability of zooplankton organisms at high environmental temperature, thus partially explaining the role of ocean warming in promoting the spread of these bacteria in the aquatic environment. Ongoing research in this field is devoted to study possible use of GbpA as a component of vaccine against *V. cholerae* in collaboration with the University of Maryland (USA) and the Centre of Biotechnology of the University of Maputo (Mozambique).

In the field of non-human diseases research activity was devoted to study *Vibrio* species that cause diseases in marine animals (e.g. corals and bivalves). Studies were conducted to assess the role of thermodependant *Vibrio* pathogens in mass mortality events of benthic invertebrates in the NW Mediterranean Sea which are related to sea surface temperature anomalies registered during the recent years. Such studies resulted in the identification of the TAV24 *Vibrio* strain, later identified as *V. coralliilyticus*, which was demonstrated to trigger mass mortality events of the purple gorgonian *Paramuricea*

clavata, a key structuring species of the coralligenous assemblages in the NW Mediterranean Sea. Ongoing activity in this field is carried out in collaboration with the Australian Institute of Marine Sciences (AIMS) aimed at the genotypic and phenotypic characterization of the TAV24 strain and the assessment of involved virulence factors using transposon and site-specific mutagenesis. In the field of bivalve diseases ongoing activity in collaboration with IFREMER (France) and other European Institutes (in the frame of European projects FP7-BIVALIFE and Horizon 2020-VIVALDI) is focused on the study of the biology and ecology of *Vibrio splendidus* and *Vibrio aestuarianus* which are involved in abnormal mortality events of the Pacific oyster *Crassostrea gigas* in the Atlantic ocean. Particular focus was given to the study of *V. aestuarianus* and *V. splendidus* interaction with bivalve hemocytes and other bivalve defense mechanisms. Major findings in this field resulted in the identification of a mussel serum opsonin (matching the protein precursor of *Mytilus edulis* extrapallial protein -EP) directed towards D-mannose binding bacterial ligands that were shown to mediate *V. aestuarianus* 01/032 interactions with *M. galloprovincialis* haemocytes. In the presence of *M. galloprovincialis* EP protein (MgEP), *C. gigas* haemocytes killed *V. aestuarianus* 01/032 almost as efficiently as mussel phagocytes. These findings suggest that the different sensitivity of 01/032 strain to the antibacterial activity of oyster and mussel haemolymph might partly depend on the fact that *C. gigas* serum lacks MgEP-like opsonins.

In the field of *Vibrio* ecology research was also conducted to study the effects of ocean warming on natural *Vibrio* populations through the development of a novel approach which is based on the molecular analysis of formalin-fixed samples from the historical Continuous Plankton Recorder (CPR) archive. The CPR archive, which is based at the Sir Alister Hardy Foundation for Ocean Science (SAHFOS) in Plymouth (UK), is one of the longest and most geographically extensive collection of marine plankton samples in the world. For the first time prokaryotic DNA was recovered from CPR samples that had been stored for up to ~50 years in a formalin-fixed format. Protocols were developed for the application of microbiological molecular techniques (e.g. PCR-based and Next Generation Sequencing techniques) on archived CPR samples. Using such protocols we were able to demonstrate that there was an increase in the numbers of vibrios over the past half century, probably a two or threefold increase, correlated with the increase in climate temperature, and then correlated with outbreaks of vibrio infections that have been recorded in the medical records. These findings provide support for the view that global warming is having a strong impact on the composition of marine prokaryotic communities with potential important implications for human and animal health.

Early research of Luigi Vezzulli was focused on the study of microbial ecology and bioremediation of organic-rich marine ecosystems. In 2011 Luigi Vezzulli developed the WinCPR software, a gridded database of plankton abundance in the North Sea compiled from monthly sampling by the Continuous Plankton Recorder (CPR) Survey (WinCPR is freely available at <http://cpr.cscan.org/>).

Publications in International Journals

1. **Vezzulli L**, Povero P and Fabiano M (2002). The distribution and biochemical composition of biogenic particles across the subtropical Front in June 1993 (Azores-Madeira region, Northeast Atlantic). *Scientia Marina*, 66(3), 205-214.

2. **Vezzulli L**, Chelossi E, Riccardi G and Fabiano M (2002). Bacterial community structure and activity in fish farm sediments of the LigurianSea (Western Mediterranean). *Aquaculture International*, 10(2), 123-141.
3. Chelossi E, **Vezzulli L**, Milano A, Branzoni M, Fabiano M, Riccardi G and Banat IM (2003)- Antibiotic resistance of benthic bacteria in fish-farm and control sediments of the Western Mediterranean. *Aquaculture*, 219, 83-97.
4. Danovaro R, Corinaldesi C, La Rosa T, Luna GM, Mazzola A, Mirto S, **Vezzulli L** and Fabiano M (2003). Aquaculture impact on benthic microbes and organic matter cycling in coastal Mediterranean sediments: a synthesis. *Chemistry and Ecology*, 19(1), 59-65.
5. **Vezzulli L**, Fabiano M, Granelli V and Moreno M (2003). Influence of large spectrum environmental contamination on the micro-meio-benthic assemblages in harbour sediments of the LigurianSea. *Chemistry and Ecology*, 19(4), 233-246.
6. **Vezzulli L** and Reid PC (2003). The CPR survey (1948-1997): a gridded database browser of plankton abundance in the North Sea. *Progress in Oceanography*, 58(2-4), 327-336.
7. **Vezzulli L**, Marrale D, Moreno M and Fabiano M (2003). Sediment organic matter and meiofauna community response to long-term fish-farm impact in the LigurianSea (Western Mediterranean). *Chemistry and Ecology*, 19(6), 431-440.
8. Doglioli A, Magaldi M, **Vezzulli L** and Tucci S (2004). Development of a numerical model to study the dispersion of wastes coming from a marine fish farm in the LigurianSea (Western Mediterranean). *Aquaculture*, 231(1-4), 215-235.
9. Fabiano M, Vassallo P, **Vezzulli L**, Salvo VS and Marques JC (2004). Temporal and spatial change of Exergy and Ascendency in different benthic marine ecosystems. *Energy*, 29, 1697-1712
10. Fabiano M, Marin V, Misic C, Moreno M, Salvo VS and **Vezzulli L** (2004). Sedimentary Organic matter and bacterial community in microtidal mixed beach of the LigurianSea (NW Mediterranean). *Chemistry and Ecology*, 20(6),423-435.
11. **Vezzulli L**, Pruzzo C and Fabiano M (2004). Response of the bacterial community to in-situ bioremediation of organic-rich sediments. *Marine Pollution Bulletin*, 49(9-10). 740-751.
12. Gallizia I, **Vezzulli L** and Fabiano M (2004). Oxygen supply for biostimulation of enzymatic activity In organic-rich marine ecosystems. *Soil Biology and Biochemistry*, 36, 1645-1652.
13. Gallizia I, **Vezzulli L** and Fabiano M. (2005). Evaluation of different bioremediation protocols to enhance decomposition of organic polymers in harbour sediments. *Biodegradation*, 16(6), 569-579.
14. **Vezzulli L**, Bartoli M, Nizzoli D, Fanciulli G, Viaroli P and Fabiano M. (2005) – Relationships between macroalgal biomass and microbiological quality of water in a phytotreatment pond. *Hydrobiologia*, 550, 211-219.

15. Bartoli M, Nizzoli D, **Vezzulli L**, Naldi M, Fanciulli G, Viaroli P and Fabiano M. (2005) – Dissolved oxygen and nutrient budgets in a phytotreatment pond colonised by *Ulva* spp. *Hydrobiologia*, 550, 199-209.
16. Bartoli M, Nizzoli D, Naldi M, **Vezzulli L**, Porrello S, Lenzi M and Viaroli P. (2005) – Inorganic nitrogen control in wastewater treatment ponds from a fish farm (Orbetello, Italy): Denitrification versus *Ulva* uptake. *Marine Pollution Bulletin*, 50(11), 1386-1397.
17. **Vezzulli L** and Fabiano M. (2006) –Sediment biochemical and microbial variables for the evaluation of trophic status along the Italian and Albanian Continental Shelves. *Journal of the Marine Biological Association of the United Kingdom*, 86, 27-37.
18. Vassallo P, Fabiano M, **Vezzulli L**, Sandulli R, Marques JC and Jørgensen SE (2006). Assessing the health of coastal marine ecosystem: a holistic approach based on sediment micro and meiobenthic measures. *Ecological Indicators*, 6(3), 525-542.
19. **Vezzulli L**, Bartoli M, Nizzoli D, Naldi M, Fanciulli G, Viaroli P and Fabiano M. (2006). A simple tool to help decision making in infrastructure planning and management of phytotreatment ponds for the treatment of nitrogen-rich water. *Water SA*, 32(4), 605-609.
20. Perfumo A, Banat IM, Marchant R and **Vezzulli L** (2007). Thermally enhanced approaches for bioremediation of hydrocarbon contaminated soils. *Chemosphere*, 66(1): 179-184.
21. Pruzzo C, **Vezzulli L**, Colwell RR (2008). Global impact of *Vibrio cholerae* interactions with chitin. *Environmental Microbiology*, 10(6): 1400-1410.
22. Moreno M, Ferrero TJ, Gallizia I, **Vezzulli L**, Albertelli G, Fabiano M (2008). An assessment of the spatial heterogeneity of environmental disturbance within an enclosed harbour through the analysis of meiofauna and nematode assemblages. *Estuarine, Coastal and Shelf Science*, 77: 565-576.
23. **Vezzulli L**, Pezzati E, Repetto B, Stauder M, Giusto G and Pruzzo C (2008). A general role for surface membrane proteins in attachment to chitin particles and copepods of environmental and clinical vibrios. *Letters in Applied Microbiology*, 46: 119-125.
24. **Vezzulli L**, Moreno M, Marin V, Pezzati E, Bartoli M, Fabiano M (2008). Organic waste impacts of capture-based Atlantic bluefin tuna aquaculture at an exposed site in the Mediterranean Sea. *Estuarine, Coastal and Shelf Science*, 78: 369-384.
25. **Vezzulli L**, Guzmán CA, Colwell RR, Pruzzo C (2008). Dual role colonization factors connecting *Vibrio cholerae*'s lifestyles in human and aquatic environments open new perspectives for combating infectious diseases. *Current Opinion in Biotechnology*, 19: 254-259.
26. Marin V, Moreno M, Vassallo P, **Vezzulli L**, Fabiano M (2008). Development of a multi-step indicator-based approach (MIBA) for the assessment of environmental quality of harbours. *ICES Journal of Marine Science*, 65: 1436-1441.
27. Moreno M, **Vezzulli L**, Marin V, Laconi P, Albertelli G, Fabiano M (2008) The use of

meiofauna diversity as indicators of pollution in harbours. *ICES Journal of Marine Science*, 65: 1428-1435.

28. **Vezzulli L**, Repetto B, Pezzati E, Stauder M, Giusto G, Pruzzo C (2008) Adhesins acquired in the aquatic environment and *Vibrio cholerae* colonization of intestinal cells. *Microbial Ecology in Health and Disease*, 20(4): 193-196.

29. **Vezzulli L**, Zotti M, Marin V, Moreno M, Pezzati E, Fabiano M (2009). Swash Zone Interstitial Water is a reservoir of fungal microorganisms in a Mediterranean beach (Genoa city, Italy). *Marine Biodiversity Records*, 2:e19.

30. Pusceddu A, Dell'Anno A, **Vezzulli L**, Fabiano M, Saggiomo V, Cozzi S, Catalano G, Guglielmo L (2009) Microbial loop malfunctioning in the annual sea ice at Terra Nova Bay (Antarctica). *Polar Biology*, 32: 337–346.

31. Bartoli M, **Vezzulli L**, Nizzoli D, Azzoni R, Porrello S, Moreno M, Fabiano M, Viaroli P (2009) Short-term effect of oxic to anoxic transition on benthic microbial activity and solute fluxes in organic-rich phytotreatment ponds. *Hydrobiologia* 629: 123–136.

32. **Vezzulli L**, Pezzati E, Moreno M, Stauder M, Fabiano M and Pruzzo C (2009). Molecular ecology of marine sediments: determination of Real-Time PCR efficiency for quantifying microbial cells. *Chemistry and Ecology* 25: 285–292

33. **Vezzulli L**, Pezzati E, Moreno M, Fabiano M, Pane L, Pruzzo C and the VibrioSea consortium (2009) Benthic ecology of *Vibrio* spp. and pathogenic *Vibrio* species in a coastal Mediterranean environment (La Spezia Gulf, Italy). *Microbial Ecology* 58: 808–818.

34. Stauder M, **Vezzulli L**, Pezzati E, Repetto B, Pruzzo C (2010) Temperature affects *Vibrio cholerae* O1 El Tor persistence in the aquatic environment via an enhanced expression of GbpA and MSHA adhesins. *Environmental Microbiology Reports* 2: 140–144.

35. **Vezzulli L**, Pruzzo C, Huq A, Colwell RR (2010) Environmental reservoirs of *Vibrio cholerae* and their role in cholera. *Environmental Microbiology Reports* 2: 27–33.

36. Spagnoli F, Dell'Anno A, De Marco A, Dinelli E, Fabiano M, Gadaleta MV, Iannig C, Loiaconoc F, Manini E, Marini M, Mongelli G, Rampazzo G, Rivaro P, **Vezzulli L** (2010). Biogeochemistry, grain size and mineralogy of the Central and Southern Adriatic Sea sediments: a review. *Chemistry and Ecology* 26: 19–44.

37. Cattaneo Vietti R, Albertelli G, Aliani S, Bava S, Bavestrello G, Benedetti Cecchi L, Bianchi CN, Bozzo E, Capello M, Castellano M, Cerrano C, Chiantore M, Corradi N, Cocito S, Cutroneo L, Diviaco G, Fabiano M, Faimali M, Ferrari M, Gasparini GP, Locritani M, Mangialajo L, Marin V, Moreno M, Morri C, Orsi Relini L, Pane L, Paoli C, Petrillo M, Povero P, Pronzato R, Relini G, Santangelo G, Tucci S, Tunesi L, Vacchi M, Vassallo P, **Vezzulli L**, Wurtz M (2010). The LigurianSea: present status, problems and perspectives. *Chemistry and Ecology* 26: 319-340.

38. **Vezzulli L**, Previati C, Pruzzo C, Marchese A, Bourne DG, Cerrano C and the VibrioSea consortium (2010). *Vibrio* infections triggering mass mortality events in a warming Mediterranean Sea. *Environmental Microbiology* 12(7): 2007-2019.

39. Stauder M, Papetti A, Daglia M, **Vezzulli L**, Gazzani G, Varaldo PE, Pruzzo C (2010). Inhibitory activity by barley coffee components towards streptococcus mutans biofilm. *Current Microbiology*, 61(5): 417-421
40. Moreno M, Semprucci F, **Vezzulli L**, Balsamo M, Fabiano M, Albertelli G (2011). The use of nematodes in assessing ecological quality status in the Mediterranean coastal ecosystems. *Ecological indicators*, 11: 328-336.
41. Huete-Stauffer C, Vielmini I, Palma M, Navone A, Panzalis P, **Vezzulli L**, Misic C, Cerrano C (2011). *Paramuricea clavata* (Anthozoa, Octocorallia) loss in the Marine Protected Area of Tavolara (Sardinia, Italy) due to a mass mortality event. *Marine Ecology and Evolutionary Perspective*, 32: 107-116.
42. **Vezzulli L**, Brettar I, Pezzati E, Reid PC, Colwell RR, Höfle MG, Pruzzo C (2012). Long-term effects of ocean warming on the prokaryotic community: evidence from the vibrios. *The ISME Journal*, 6: 21-30.
43. Signoretto, C, Canepari P, Stauder M, **Vezzulli L** and Pruzzo C (2012). Functional foods and strategies contrasting bacterial adhesion. *Current Opinion in Biotechnology*, 23:160-167.
44. Stauder M., Huq A., Pezzati E, Grim CJ, Ramoino P, Pane L, Colwell RR, Pruzzo C, **Vezzulli L** (2012). Role of GbpA protein, an important virulence-related colonization factor, for *Vibrio cholerae*'s survival in the aquatic environment. *Environmental Microbiology Reports*, 4:439-445.
45. **Vezzulli L**, Colwell RR, Pruzzo C (2013) Ocean warming and spread of pathogenic vibrios in the aquatic environment. *Microbial Ecology*, 65(4), 817-825.
46. Losi V, Moreno M, Gaozza L, **Vezzulli L**, Fabiano M, Albertelli G (2013) Nematode biomass and allometric attributes as indicators of environmental quality in a Mediterranean harbour (Ligurian Sea, Italy) *Ecological Indicators* 30, 80–89
47. **Vezzulli L**, Pezzati E, Huete-Stauffer C, Pruzzo C, Cerrano C (2013) 16SrDNA Pyrosequencing of the Mediterranean Gorgonian *Paramuricea clavata* Reveals a Link among Alterations in Bacterial Holobiont Members, Anthropogenic Influence and Disease Outbreaks. *Plos One* 8(6), e67745
48. Balbi T, Fabbri R, Cortese K, Smerilli A, Ciacci C, Grande C, **Vezzulli L**, Pruzzo C, Canesi L (2013) Interactions between *Mytilus galloprovincialis* hemocytes and the bivalve pathogens *Vibrio aestuarianus* 01/032 and *Vibrio splendidus* LGP32. *Fish and Shellfish Immunology* 35(6), 1906-1915
49. Wilson B, Muirhead A, Bazanella M, Huete-Stauffer C, **Vezzulli L**, Bourne DG (2013) An Improved Detection and Quantification Method for the Coral Pathogen *Vibrio coralliilyticus*. *Plos One* 8(12), e81800
50. Canesi L, Pezzati E, Stauder M, Grande C, Bavestrello M, Papetti A, **Vezzulli L**, Pruzzo C (2013) *Vibrio cholerae* interactions with *Mytilus galloprovincialis* hemocytes mediated by serum components. *Frontiers in Microbiology* 4:371

51. **Vezzulli L**, Pezzati E, Stauder M, Stagnaro L, Venier P, Pruzzo C (2015) Aquatic Ecology of the Oyster Pathogens *Vibrio splendidus* and *Vibrio aestuarianus*. *Environmental Microbiology* 17(4): 1065–1080
52. **Vezzulli L**, Stauder M, Grande C, Pezzati E, Verheye HM, Owens NJP, Pruzzo C (2015) gbpA as a novel qPCR target for the species-specific detection of *Vibrio cholera* O1, O139, non-O1/non-O139 in Environmental, Stool, and Historical Continuous Plankton Recorder Samples. *Plos One*, 10(4): e0123983. doi:10.1371/journal.pone.0123983
53. Huete-Stauffer C, Valisano L, Gaino E, **Vezzulli L**, Cerrano C (2015). Development of long-term primary cell aggregates from Mediterranean octocorals. *In Vitro Cellular and Developmental Biology – Animal* 51(8):815-26.
54. Le Roux F, Wegner M, Baker Austin C, **Vezzulli L**, Osorio CR, Amaro C, Ritchie J, Defoirdt T, Destoumieux-Garzon D, Blokesch M, Mazel D, Jacq A, Cava F, Gram L, Wendling C, Strauch E, Kirschner A, Huehn S (2015) The Emergence of *Vibrio* pathogens in Europe: Ecology, Evolution and Pathogenesis (Paris, 11-12 March 2015). *Frontiers in Microbiology* 6:830. doi: 10.3389/fmicb.2015.00830.
55. **Vezzulli L**, Pezzati E, Brettar I, Höfle M, Pruzzo C. (2015). Effects of global warming on *Vibrio* ecology. *Microbiology Spectrum* 3(2):VE-0004-2014. doi:10.1128/microbiolspec.VE-0004-2014.
56. Pezzati E, Canesi L, Damonte G, Salis A, Marsano F, Grande C, **Vezzulli L**, Pruzzo C (2015) Susceptibility of *Vibrio aestuarianus* O1/O32 to the antibacterial activity of *Mytilus* hemolymph: identification of a serum opsonin involved in mannose-sensitive interactions. *Environmental Microbiology* 17(11):4271-4279.
57. Pozzolini M, Scarfi S, Ghignone S, Mussino F, **Vezzulli L**, Cerrano C, Giovine M (2016) Molecular characterization and expression analysis of the first Porifera tumor necrosis factor superfamily member and of its putative receptor in the marine sponge *Chondrosia reniformis*. *Developmental and Comparative Immunology* 57, 88-98.
58. Canesi L, Grande C, Pezzati E, Balbi T, **Vezzulli L**, Pruzzo C (2016) Killing of *Vibrio cholerae* and *Escherichia coli* Strains Carrying D-mannose-sensitive Ligands by *Mytilus* Hemocytes is Promoted by a Multifunctional Hemolymph Serum Protein. *Microbial Ecology*, In press.
59. Cogliati M, D'Amicis R...**Vezzulli L**.. Colom MF (59 authors) (2016). Environmental distribution of *Cryptococcus neoformans* and *Cryptococcus gattii* around the Mediterranean basin. *FEMS Yeast Research*, 16(4): 1-12.
60. **Vezzulli L**, Grande C, Reid PC, Hélaouët P, Edwards M, Höfle MG, Brettar I, Colwell RR, Pruzzo C (2016) Climate influence on *Vibrio* and associated human diseases during the past half-century in the coastal North Atlantic. *Proc Natl Acad Sci USA* 23;113(34):E5062-71.
61. **Vezzulli L**, Grande C, Tassistro G, Brettar I, Höfle MG, Pereira RPA, Mushi D, Pallavicini A, Vassallo P, Pruzzo C (2016) Whole-genome enrichment provides deep

insights into *Vibrio cholerae* metagenome from an African river. *Microbial Ecology*, In press, DOI 10.1007/s00248-016-0902-x

Chapter in International books

- James D. Oliver, Carla Pruzzo, Luigi Vezzulli, James B. Kaper" *Vibrio Species*," *Food Microbiology: Fundamentals and Frontiers*, 4th Ed. Edited by M. P. Doyle and R. L. Buchanan © 2013 ASM Press, Washington, ISBN-10: 1555816266, D.C. doi:10.1128/9781555818463.ch16
- Ingrid Brettar, Manfred G. Höfle, Carla Pruzzo, Luigi Vezzulli. *Climate Change Effects on Planktonic Bacterial Communities in the Ocean* ISBN: 978-1-910190-31-9—From Structure and Function to Long-term and Large-scale Observations, "Climate Change and Microbial Ecology: Current Research and Future Trends" Ed. Edited by Jürgen Marxsen Justus Liebig University, Giessen, Germany, © 2015 Caister Academic Press, Norfolk, UK

Ongoing International collaboration

- Rita R. Colwell Maryland Pathogen Research Institute and 3Center of Bioinformatics and Computational Biology, University of Maryland, College Park, MD 20742, USA.
- Anwar Huq. University of Maryland, College Park, MD 20742, USA
- Ingrid Brettar, Manfred Höfle, Carlos A. Guzman, Helmholtz Centre for Infection Research, Dept. Vaccinology and Applied Microbiology, Braunschweig, Germany
- Philip Chris Reid. Sir Alister Hardy Foundation for Ocean Science (SAHFOS), Plymouth, UK
- David G. Bourne, Australian Institute of Marine Science Townsville (Australia)
- Monique Pommepuy, Dominique Hervio. Institut Français de Recherche pour l'Exploitation de la Mer (IFREMER) Laboratoire Microbiologie, Brest France
- Tristan Renault. Institut Français de Recherche pour l'Exploitation de la Mer (IFREMER), Laboratoire de Génétique et Pathologie (LGP), Avenue de Mus de Loup, 17390 La Tremblade, France.
- Ibrahim Banat, School of Biomedical Sciences, University of Ulster, UK
- Micha Ilan, Department of Zoology, Tel Aviv University, Israel
- Mauro Colombo, Centre of Biotechnology, University Eduardo Mondlane, Maputo, Mozambique

Keynote/invited speaker at conferences and symposia

- **2005**: "Integrated assessment of recently identified risk factors for food safety improvement in mussel farming" Euro-Mediterranean meetings-the innovation for an economic and sustainable development in the Mediterranean Sea, 3-4 October 2005, Izmir, Turkey.
- **2009**: "Interazioni microbiche nell'ambiente marino: aspetti emergenti". 37° Congresso Nazionale della Società Italiana di Microbiologia, 11-14 October 2009, Turin, Italy
- **2011**: "Interactions between vibrios and copepods: effects on pathogen persistence, survival and transmission to humans" 11th International Conference on Copepoda, 10-15 July 2011, Merida (Yucatan), Mexico
- **2012**: "Effect of global warming on *Vibrio* spp. in the temperate marine environment" International Symposium "Pathogenic *Vibrio* spp. in Northern European Waters", 31 May-1 June 2012, Koblenz, Germany

- **2013:** “Dall’ambiente all’uomo: Evoluzione e Selezione di caratteristiche di virulenza In *Vibrio cholerae*”, 41° Congresso Nazionale della Società Italiana di Microbiologia, 13-16 October 2013, Riccione, Italy
- **2014:** “Macroecology of vibrios in the temperate northern hemisphere linked to ocean warming”, Vibrio 2014 conference, 1-4 April 2014, Edinburgh (UK)
- **2015:** “Vibrio and Climate change: what's relevant for Europe?” Vibrio European workshop, 11-12 March 2015, Paris, France
- **2015:** “Ocean warming and spread of pathogenic vibrios in the aquatic environment” Convegno SIMGBM, 23-26 September 2015, Ravenna, Italy
- **2016:** “Genotipizzazione diretta di *Vibrio cholerae* nelle acque mediante NGS” Convegno Next Generation Sequencing (NGS), Esperienze del gruppo di lavoro a Genova, Ospedale Galliera, 15th January 2016, Genoa, Italy

Invited seminars at National and International Institutions

- **2013:** “Ecology of Vibrios in the light of Climate Change” seminary at the Helmholtz Centre for Infection Research (HZI), 4st June 2013, Braunschweig, Germany
- **2013:** “Ecology of Vibrios in the light of Climate Change” seminary at the Marine Biological Association and SAHFOS, 21st February 2013, Plymouth, UK
- **2014:** “Vibrios and Climate Change”, seminary at CNR-ISMAR, 25 March 2014, Venice, Italy
- **2014:** “Aquatic microbes and Human health in the light of Climate change: the "Vibrio" case study” seminary at EPFL, 25 November 2014, Lausanne, Switzerland
- **2015:** “Vibrio and CPR: an update!” seminary at the Sir Alister Hardy Foundation for Ocean Science, 24st February 2015, Plymouth, UK

Membership in Organizing Committee of National/International conferences and symposia

- **2013:** member of the local Organizing Committee of the First EMBO Conference on Aquatic Microbial Ecology (SAME13), 8-13 September 2013, Stresa, Italy

Participation to conference and symposia

(+) Participation in form of oral presentation

(++) Participation in form of invited-keynote oral presentation

- Ecosystem Effects of Fishing, ICES/SCOR Symposium, 15-19 March 1999, Montpellier, France
- (+) Congresso Nazionale Associazione Italiana di Oceanologia e Limnologia, September 2000, Garda, Italy
- 2° Convegno Nazionale delle Scienze del Mare, 22-25 November 2000, Genoa, Italy
- (+) 36th Congress Commission Internationale Pour l’Exploration Scientifique de la Mer Mediterranée (CIESM), 24-28 September 2001, Monte Carlo
- Congress European Federation of Marine Science and Technology societies (EFMS), 27-29 September 2002, Athens, Greece
- Aquaculture Europe 2002 Conference, 16-19 October, Trieste, Italy
- 8th Symposium on Aquatic Microbial Ecology. 25-30 October 2002, Taormina, Italy
- Southern European Coastal Lagoons: the influence of river basin-coastal zone interactions international conference, 10-12 November 2003, Ferrara, Italy

- Royal Society's Summer Science Exhibition, 5-8 July 2004, London, England
- XV Congresso Nazionale della Società Italiana di Ecologia (SITE), 12-14 September 2005, Turin, Italy
- VII Congresso Annuale della Federazione Italiana delle Scienze della Vita (FISV), 22-25 September 2005, Riva del Garda, Italy
- (+) Euro-Mediterranean meetings-the innovation for an economic and sustainable development in the Mediterranean Sea, 3-4 October 2005, Izmir, Turkey
- (+) Second International Symposium on research and management of eutrophication in coastal ecosystems, 20-23 June 2006, Nyborg, Denmark
- Vibrio 2010 international symposium, 28 November-1 December 2007, Paris, France
- (+) X Congresso Annuale della Federazione Italiana delle Scienze della Vita (FISV), 24-27 September 2008, Riva del Garda, Italy
- (+) XVIII Congresso Nazionale della Società Italiana di Ecologia (SITE), 1-3 September 2008, Parma, Italy
- (++) 37° Congresso Nazionale della Società Italiana di Microbiologia, 11-14 October 2009, Turin, Italy
- Vibrio 2009 International Symposium, 4-6 November 2009, Rio de Janeiro, Brazil
- (+) Bertinoro meeting di Microbiologia Ambientale, 21-22 May 2010, Bertinoro, Italy
- (+) XX Congresso Nazionale della Società Italiana di Ecologia (SITE), 27-30 September 2010, Roma, Italy
- Vibrio in the Environment 2010 International Symposium, 7-12 November 2010, Biloxi (Mississippi), USA
- Preventing the adverse health impacts of climate change: What public health interventions really work and what do not? 16-17 June 2011, ECDC, Stockholm, Sweden
- (++) 11th International Conference on Copepoda, 10-15 July 2011, Merida (Yucatan), Mexico
- Convegno SIMGBM, 21-23 September 2011, Pisa, Italy
- (++) International Symposium "Pathogenic Vibrio spp. in Northern European Waters", 31 May-1 June 2012, Koblenz, Germany
- Convegno FISV, 24-27 September 2012, Pisa, Italy
- (+) 40° Congresso Nazionale della Società Italiana di Microbiologia, 7-10 October 2012, Riccione, Italy
- (+) AGU Fall Meeting 2012, 3-7 December 2012, San Francisco, USA
- First EMBO Conference on Aquatic Microbial Ecology (SAME13), 8-13 September 2013, Stresa, Italy
- (+) Convegno SIMGBM, 8-21 September 2013, Ischia, Italy
- (++) 41° Congresso Nazionale della Società Italiana di Microbiologia, 13-16 October 2013, Riccione, Italy
- (++) Vibrio 2014 International Symposium, 1-4 April 2014, Edinburgh, UK
- (++) Vibrio European workshop, 11-12 March 2015, Paris, France
- (++) Convegno SIMGBM, 23-26 September 2015, Ravenna, Italy
- (+) 1° Congresso Nazionale Congiunto SITE - UZI - SIB, 30 August-2 September 2016, Milan, Italy

Participation to national and international courses

- **2003:** Participation to the course "Detecting multivariate changes in biological assemblages: experimental design and data analysis", Prof. M.J. Anderson (University of Auckland, New Zealand), Prof. L. Benedetti-Cecchi (University of

Pisa, Italy), Prof. K.R. Clarke and P. Somerfield (Plymouth Marine Laboratory, UK), from 26 May to 6 June, University of Lecce (Italy).

- **2009:** Participation to the course "Advanced bioinformatics", 5-6 October 2009, Fondazione per le Biotecnologie (www.fobiotech.org), Torino (Italy).
- **2010:** Participation to the course "Mini Corso 454 New Generation Sequencing La tecnologia, le applicazioni, i vantaggi". 13 May 2012, University of Genoa (Italy).

Principal Investigator of National Research Projects

- **2006** ATENEO DI GENOVA (**Principal investigator**): "Mechanism of horizontal gene transfer of *Vibrio* spp in mussels" funded by the University of Genoa (euro 8,077) (2006).
- **2011** ATENEO DI GENOVA (**Principal investigator**): "Climate and infectious disease: effects of ocean warming on the global ecology and biogeography of *Vibrio* pathogens" funded by "University of Genoa" Principal investigator: Luigi Vezzulli (euro 7,011).

Principal Investigator of European Research Projects

- **2013-2017** SEVENTH FRAMEWORK PROGRAMME (**Coordinator of research unit**): "Protecting the health of Europeans by improving methods for the detection of pathogens in drinking water and water used in food preparation (AQUAVALENS)" funded by "European FP7 topic-KBBE-2012-6", Principal investigator: Paul Hunter (University of East Anglia, England), coordinator of the research unit of Univ. Genoa since 2015 onward: Luigi Vezzulli (euro 250,511).

Principal Investigator of other International Research Projects

- **2012-2014** ITALIAN MINISTRY OF FOREIGN AFFAIRS (**Principal investigator**): ""The mesophotic zone: Conservation tool and new drugs frontier" funded by the Italian Ministry of Foreign Affairs within the the Joint Italian-Israeli R&D programme (euro 20,000).
- **2014-2015** ROYAL SOCIETY (UK) (**Co-Principal investigator**): "Global Scale Macroecology of Human *Vibrio* pathogens (GLOBALVIBRIO)" funded by the Royal Society (UK) within the International Exchanges Scheme - 2013/R2 (GBP 12,000) (2014:2015).

Participation to national research projects

- **2005-2008** ITALIAN MINISTRY OF EDUCATION, UNIVERSITY AND RESEARCH (**Participant**) "Innovative model for integrated management of marine fish farm to improve food safety and environmental quality (ALLITTIMA)" funded by "Italian Ministry of Education, University and Research" Programme "Fondo Integrativo Speciale per la Ricerca (FISR)", Principal investigator: Biancamaria Poli, coordinator of the research unit: Mauro Fabiano (euro 197,115)
- **2008** ATENEO DI GENOVA (**Participant**): "Mass mortality events of benthic invertebrates in the Mediterranean Sea: environmental stress and/or microbial infections?" funded by "University of Genoa", Principal investigator: Carlo Cerrano (euro 6,000).

- **2010-2012** ITALIAN MINISTRY OF EDUCATION, UNIVERSITY AND RESEARCH (**Participant**): "Ruolo dell'ambiente marino nella selezione di batteri patogeni per l'uomo: il caso dell'adesina p53 di *Vibrio cholerae*" funded by "Italian Ministry of Education, University and Research" Programme PRIN 2008, Principal investigator: Lleo' Fernandez Maria Del Mar, coordinator of the research unit: Carla Pruzzo (euro 52,527).
- **2013-2014** ITALIAN MINISTRY OF EDUCATION, UNIVERSITY AND RESEARCH (**Participant**) "Integrate Research on Antarctic Silverfish Ecology in the Ross sea" funded by "Italian Ministry of Education, University and Research" Programma Nazionale di Ricerche in Antartide, Call 2013, Principal investigator: Marino Vacchi (ISMAR-CNR).
- **2015-2018** ITALIAN MINISTRY OF EDUCATION, UNIVERSITY AND RESEARCH (**Participant**) "Discovery of novel antimicrobial compounds from unexplored marine environments as a source of innovative antimicrobial approaches to address the global threat of antibiotic resistance" funded by "Italian Ministry of Education, University and Research" Programma SIR, Call 2014, Principal investigator: Filomena De Luca (University of Siena), (euro 344,036)

Participation to European research projects

- **2010-2013** SEVENTH FRAMEWORK PROGRAMME (**Participant**): "Controlling of infectious diseases in oysters and mussels in Europe (BIVALIFE)" funded by "European FP7-topic KBBE. 2010.1.2-08", Principal investigator: Tristan Reanault (IFREMER France), coordinator of the research unit: Carla Pruzzo (euro 201,000).
- **2016-2019** HORIZON 2020 (**Participant**): "Preventing and mitigating farmed bivalve diseases (VIVALDI)" funded by "European Horizon 2020 Call: H2020 — H2020-SFS-2015-2, Principal investigator: Isabelle Arzul (IFREMER, France), coordinator of the research unit: Carla Pruzzo (euro 199,230).

Participation to other international research projects

- **2011** NATIONAL GEOGRAPHIC SOCIETY (USA) (**Participant**): "The exploration of the Mediterranean mesophotic zone: a new frontier for biodiversity discovery". funded by "National Geographic Society (USA)" Principal investigator: Carlo Cerrano (USD 20,000).

Research and Awards in International institutes

2005: Honorary Fellow at the Sir Alister Hardy Foundation for Ocean Science, Plymouth, UK

Dr Luigi Vezzulli was elected as Honorary Fellow by the Sir Alister Hardy Foundation for Ocean Science at the 28th Council Meeting in April 2005. The award was given in recognition of his work with the Foundation on WinCPR, a gridded database of plankton abundance in the North Sea compiled from monthly sampling by the Continuous Plankton Recorder (CPR) Survey (WinCPR is freely available at <http://cpr.cscan.org/>). WinCPR has been used by researchers and research institutes worldwide and has a wide range of potential applications including marine ecology, microbial oceanography, marine management, mathematics, modelling and statistical analysis. Recently WinCPR have been employed by Vezzulli et al 2012 (ISMEJ, 6:21-30) and Vezzulli et al 2016 (Proc Natl

Acad Sci USA 23;113(34):E5062-71) to investigate the relationship between *Vibrio* and plankton over a multidecadal scale showing that the genus *Vibrio*, including the human pathogen *V. cholerae*, has increased in prevalence in the last half a century in the coastal waters of the North Atlantic and North Sea and that this increase is correlated significantly, during the same period, with warming sea surface temperature. Supportive documentation regarding Luigi Vezzulli "Honorary Fellowship" award are attached to this application in scanned PDF format

2011: Associated Researcher at the Sir Alister Hardy Foundation for Ocean Science, Plymouth, UK

In 2011 Dr Vezzulli was awarded a SAHFOS Associated Researcher bursary in recognition of his work with the Foundation on 'Global Scale Macroecology of *Vibrio* pathogens (GLOBALVIBRIO)'. This activity is focused on the global emerging threats to human health posed by environmental *Vibrio* pathogens, who are causing serious public-health concerns in many areas throughout the world, including Europe, and whose occurrence is expected to increase in the near future under the influence of climate and human-driven environmental changes. The general objective of this research activity is to study the macroecology of human pathogenic vibrios in the global aquatic environment using the CPR technology, including the relationship with plankton, which represents one of the main environmental reservoir for these bacteria. This study will produce new knowledge in the frame of the current emerging issue concerning the worldwide spread of outbreaks and epidemics of human illness associated to vibrios.

Supportive documentation regarding Luigi Vezzulli "Associated Researcher" award is attached to this application in scanned PDF format

2013: FEMS Invited Speaker Meeting Grant (ISMG) 2013

to attend the FEMS Meeting 2014-03: VIBRIO 2014 International Symposium and present a key-note lecture: "*Global macroecology of Vibrio pathogens*"

Participation in private companies

Luigi Vezzulli is a co-founder of the MICAMO srl (Via Greto di Cornigliano 6R - 16152 Genova Italy, P.IVA 02050300991, <http://www.micamo.com>). MICAMO (Microbiologia Ambientale e Molecolare) is a University SPIN-OFF founded in 2011 working in the biotechnological sector. MICAMO focus its activity in the application and development of Innovative technology for the detection and control of microbial pathogens in water and food. Supportive documentation regarding Luigi Vezzulli contribution in MICAMO srl is attached to this application in scanned PDF format

Participation as member of editorial board in scientific Journals

Since February 2014 member of the editorial board of "Frontiers in Environmental Health"

Scientific reviewer for the following journals

Nature Climate Change, ISME Journal, Environmental Microbiology and Environmental Microbiology report, Microbial Ecology, Journal of Applied Microbiology, Annals of Microbiology, PlosONE, Water Research, Marine Pollution Bulletin, Continental Shelf Research, Journal of Environmental Management, Deep-Sea Research Part II, Process Biochemistry, Journal of Plankton Research, Water SA, Hydrobiologia

Affiliations

- Italian Society of General Microbiology (S.I.M.G.B.M.)
- Italian Society of Microbiology (S.I.M)

No peer-review research contract

- **2010** STUDIO TECNICO LANTERI (*Principal investigator*): “Detection, isolation and genotyping of *Legionella pneumophila* serogroup 1 in water” funded by Studio Tecnico Lanteri (Sanremo) (euro 2,170).

Development of scientific software

SAHFOS WinCPR v.1.1

www version

Vezzulli L., Dowland PS, Reid PC, Hylton EK (2007). Gridded database browser of North Sea plankton, Version 1.1: fifty four years (1948-2001) of monthly plankton abundance from the Continuous Plankton Recorder (CPR) survey. Sir Alister Hardy Foundation, Plymouth, UK. At URL: <http://cpr.cscan.org/>

CD version

Vezzulli L., Dowland PS, Reid PC, Hylton EK (2007). Gridded database browser of North Sea plankton, Version 1.1: fifty four years (1948-2001) of monthly plankton abundance from the Continuous Plankton Recorder (CPR) survey [CD-ROM]. Sir Alister Hardy Foundation, Plymouth, UK.

Video

ITALIAN <http://www.youtube.com/watch?v=OTQE1XDwrc8>

ENGLISH <http://www.youtube.com/watch?v=v1uFoPG3Grk&feature=youtu.be>

TEACHING

Official academic courses at the University of Genoa

- **2013/2014**: lecturer for teaching the course “**Environmental Microbiology (5 CFU)**”, Degree in Environmental Sciences, University of Genoa.
- **2013/2014**: lecturer for teaching the course “**Environmental Microbiology (6 CFU)**”, Degree in Biological Sciences, University of Genoa.
- **2012/2013**: lecturer for teaching the course “**Environmental Microbiology (5 CFU)**”, Degree in Environmental Sciences, University of Genoa.
- **2012/2013**: lecturer for teaching the course “**Environmental Microbiology (6 CFU)**”, Degree in Biological Sciences, University of Genoa.
- **2011/2012**: lecturer for teaching the course “**Environmental Microbiology (5 CFU)**”, Degree in Environmental Sciences, University of Genoa.
- **2011/2012**: lecturer for teaching the course “**Environmental Microbiology (6 CFU)**”, Degree in Biological Sciences, University of Genoa.

- **2010/2011**: lecturer for teaching the course “**Environmental Microbiology (5 CFU)**”, Degree in Environmental Sciences, University of Genoa.
- **2010/2011**: lecturer for teaching the course “**Environmental Microbiology (6 CFU)**”, Degree in Biological Sciences, University of Genoa.
- **2009/2010**: lecturer for teaching the course “**Environmental Microbiology (4 CFU)**”, Degree in Environmental Sciences, University of Genoa.
- **2009/2010**: lecturer for teaching the course “**Environmental Microbiology (2 CFU)**”, Degree in Biological Sciences, University of Genoa.
- **2009/2010**: lecturer for teaching the course “**Applied Microbiology (3 CFU)**”, Degree in Biological Sciences, University of Genoa.
- **2008/2009**: lecturer for teaching the course “**Environmental Microbiology (4 CFU)**”, Degree in Environmental Sciences, University of Genoa.
- **2008/2009**: lecturer for teaching the course “**Environmental Microbiology (2 CFU)**”, Degree in Biological Sciences, University of Genoa.
- **2007/2008**: lecturer for teaching the course “**Environmental Microbiology (4 CFU)**”, Degree in Environmental Sciences, University of Genoa.
- **2007/2008**: lecturer for teaching the course “**Environmental Microbiology (2 CFU)**”, Degree in Biological Sciences, University of Genoa.
- **2006/2007**: lecturer for teaching the course “**Environmental Microbiology (4 CFU)**”, Degree in Environmental Sciences, University of Genoa.

Official PhD courses

- **2008**: Scientific board member: doctorate degree course in “GENETICA ONCOLOGICA E BIOLOGIA DEL DIFFERENZIAMENTO”, [DOT0511141], University of Genoa
- **2009/2012**: Scientific board member: doctorate degree course in “GENETICA”, [DOT0911723], University of Genoa
- **2013/-**: Scientific board member: doctorate degree course in “SCIENZE E TECNOLOGIE PER L'AMBIENTE E IL TERRITORIO (STAT) [DOT1311038], University of Genoa

Lectures Within Master (Post-Lauream)

- **2004**: lecturer (6 h) on “Microbial community in fish-farm environments” within the Master Aquicultura: risorse, impatto e gestione (MARIG 2004) (University of Genoa and Universidad Austral de Chile).
- **2004**: lecturer (4 h) on “Microbial bioremediation of organic rich sediments within the Master Scienza e tecnologia per lo sviluppo sostenibile in siti contaminati (University of Parma).
- **2007-2009-2010**: lecturer (6 h) on “Fundamentals of Microbiology” within the Master II Level “Water Treatment Innovative Membrane Technologies and Conventional Processes For Waste And Drinking Water Treatment” (University of Genoa, Master Director: Prof. G. Capanelli).
- **2010**: lecturer (6 h) on “Microbial pathogen in aquaculture” within the Master II Level “Applicazioni tecnologiche per la gestione della qualità e sicurezza alimentare dei prodotti tipici territoriali e del mare”; Regione Liguria, CBA-Centro Biotecnologie Avanzate, Genova

Advisor of the following PhD theses

- **2009-2012:** Tutor of the PhD thesis in Genetics (DOT0911723, University of Genoa):
“Assessment of *Vibrio coralliilyticus* virulence genes by transposons mutagenesis analysis”, candidate: Carla Huete-Stauffer.

Advisor of graduate thesis

Since 2001 Luigi Vezzulli has been advisor for more than 20 graduate thesis in Environmental Sciences and Biological Sciences at University of Genoa

Tutor of the following research contractors

- **2012:** Chiara Grande – object/activity “Technical and scientific support to the study of pathogenicity of *Vibrio splendidus* and *Vibrio aestuarianus* associated with oyster diseases”

Tutor of the following visiting research fellowship

- **2012 (June to August):** Esther Rubio Portillo – object/activity “study of *Vibrio* spp. populations in *Oculina patagonica* and in *Cladocora caespitosa* in the Western Mediterranean Sea.”