
6 Literaturverzeichnis

- Adams GP & Weiner LM.** (2005). Monoclonal antibody therapy of cancer. *Nat Biotechnol* **23**: 1147-1157.
- Amlot PL, Stone MJ, Cunningham D, Fay J, Newman J, Collins R, May R, McCarthy M, Richardson J, Ghetie V & et al.** (1993). A phase I study of an anti-CD22-deglycosylated ricin A chain immunotoxin in the treatment of B-cell lymphomas resistant to conventional therapy. *Blood* **82**: 2624-2633.
- Antignani A, Naddeo M, Cubellis MV, Russo A & D'Alessio G.** (2001). Antitumor action of seminal ribonuclease, its dimeric structure, and its resistance to the cytosolic ribonuclease inhibitor. *Biochemistry* **40**: 3492-3496.
- Ardelt B, Ardel W & Darzynkiewicz Z.** (2003). Cytotoxic ribonucleases and RNA interference (RNAi). *Cell Cycle* **2**: 22-24.
- Ardelt W, Mikulski SM & Shogen K.** (1991). Amino acid sequence of an anti-tumor protein from *Rana pipiens* oocytes and early embryos. Homology to pancreatic ribonucleases. *J Biol Chem* **266**: 245-251.
- Argos P.** (1990). An investigation of oligopeptides linking domains in protein tertiary structures and possible candidates for general gene fusion. *J Mol Biol* **211**: 943-958.
- Arnold U, Rücknagel KP, Schierhorn A & Ulbrich-Hofmann R.** (1996). Thermal unfolding and proteolytic susceptibility of ribonuclease A. *Eur J Biochem* **237**: 862-869.
- Arnold U, Schierhorn A & Ulbrich-Hofmann R.** (1998). Influence of the carbohydrate moiety on the proteolytic cleavage sites in ribonuclease B. *J. Protein Chem.* **17**: 397-405.
- Arnold U, Schulenburg C, Schmidt D & Ulbrich-Hofmann R.** (2006). Contribution of structural peculiarities of onconase to its high stability and folding kinetics. *Biochemistry* **45**: 3580-3587.
- Arnold U & Ulbrich-Hofmann R.** (2006). Natural and engineered ribonucleases as potential cancer therapeutics. *Biotechnol Lett* **28**: 1615-1622.
- Barth S, Winkler U, Diehl V & Engert A.** (1997). Immunotoxins. Mechanism of action and applications in malignant diseases. *Internist (Berl)* **38**: 1063-1069.
- Beintema JJ.** (1998). Introduction: the ribonuclease A superfamily. *Cell Mol Life Sci* **54**: 763-765.
- Benito A, Vilanova M & Ribó M.** (2008). Intracellular Routing of Cytotoxic Pancreatic-Type Ribonucleases. *Current Pharmaceutical Biotechnology* **9**: 169-179.
- Blackburn P, Wilson G & Moore S.** (1977). Ribonuclease inhibitor from human placenta. Purification and properties. *J Biol Chem* **252**: 5904-5910.
- Blackburn P & Jalkhiani BL.** (1979). Ribonuclease inhibitor from human placenta: interaction with derivatives of ribonuclease A. *J Biol Chem* **254**: 12488-12493.
- Blazquez M, Fominaya JM & Hofsteenge J.** (1996). Oxidation of sulfhydryl groups of ribonuclease inhibitor in epithelial cells is sufficient for its intracellular degradation. *J Biol Chem* **271**: 18638-18642.
- Bohley P, Kirschke H, Langner J & Ansorge S.** (1969). *FEBS Lett* **5**: 233-236.

- Boix E, Wu Y, Vasandani VM, Saxena SK, Ardelt W, Ladner J & Youle RJ.** (1996). Role of the N terminus in RNase A homologues: differences in catalytic activity, ribonuclease inhibitor interaction and cytotoxicity. *J Mol Biol* **257**: 992-1007.
- Bokemeyer C & Panse J.** (2005). Passive immunotherapy with monoclonal antibodies. *Onkologie* **28 Suppl 4**: 9-13.
- Bosch M, Benito A, Ribo M, Puig T, Beaumelle B & Vilanova M.** (2004). A nuclear localization sequence endows human pancreatic ribonuclease with cytotoxic activity. *Biochemistry* **43**: 2167-2177.
- Bosslet K, Straub R, Blumrich M, Czech J, Gerken M, Sperker B, Kroemer HK, Gesson JP, Koch M & Monneret C.** (1998). Elucidation of the mechanism enabling tumor selective prodrug monotherapy. *Cancer Res* **58**: 1195-1201.
- Bracale A, Spalletti-Cernia D, Mastronicola M, Castaldi F, Mannucci R, Nitsch L & D'Alessio G.** (2002). Essential stations in the intracellular pathway of cytotoxic bovine seminal ribonuclease. *Biochem J* **362**: 553-560.
- Broadwell RD, Baker-Cairns BJ, Friden PM, Oliver C & Villegas JC.** (1996). Transcytosis of protein through the mammalian cerebral epithelium and endothelium. III. Receptor-mediated transcytosis through the blood-brain barrier of blood-borne transferrin and antibody against the transferrin receptor. *Exp Neurol* **142**: 47-65.
- Brunger AT, Adams PD, Clore GM, DeLano WL, Gros P, Grosse-Kunstleve RW, Jiang JS, Kuszewski J, Nilges M, Pannu NS, Read RJ, Rice LM, Simonson T & Warren GL.** (1998). Crystallography & NMR system: A new software suite for macromolecular structure determination. *Acta Crystallogr D Biol Crystallogr* **54**: 905-921.
- Burton LE & Fucci NP.** (1982). Ribonuclease inhibitors from the livers of five mammalian species. *Int J Pept Protein Res* **19**: 372-379.
- Cafaro V, De Lorenzo C, Piccoli R, Bracale A, Mastronicola MR, Di Donato A & D'Alessio G.** (1995). The antitumor action of seminal ribonuclease and its quaternary conformations. *FEBS Lett* **359**: 31-34.
- Casciola-Rosen LA & Hubbard AL.** (1991). Hydrolases in intracellular compartments of rat liver cells. Evidence for selective activation and/or delivery. *J Biol Chem* **266**: 4341-4347.
- Cole SP, Bhardwaj G, Gerlach JH, Mackie JE, Grant CE, Almquist KC, Stewart AJ, Kurz EU, Duncan AM & Deeley RG.** (1992). Overexpression of a transporter gene in a multidrug-resistant human lung cancer cell line. *Science* **258**: 1650-1654.
- Collaborative Computational Project Number4.** (1994). The CCP4 Suite: Programs for Protein Crystallography. *Acta Cryst* **D50**: 760-763.
- Conde FP, Orlandi R, Canevari S, Mezzanzanica D, Ripamonti M, Munoz SM, Jorge P & Colnaghi MI.** (1989). The Aspergillus toxin restriction is a suitable cytotoxic agent for generation of immunoconjugates with monoclonal antibodies directed against human carcinoma cells. *Eur J Biochem* **178**: 795-802.
- Corbishley TP, Johnson PJ & Williams R.** (1984). Serum ribonucleases. In *Methods of enzymatic catalysis*, 3rd ed. (ed. Bergmeyer HU), pp. 134-143. VCH, Weinheim.
- Costanzi J, Sidransky D, Navon A & Goldsweig H.** (2005). Ribonucleases as a novel pro-apoptotic anticancer strategy: review of the preclinical and clinical data for ranpirnase. *Cancer Invest* **23**: 643-650.

-
- Creamer TP & Campbell MN.** (2002). Determinants of the polyproline II helix from modeling studies. *Adv Protein Chem* **62**: 263-282.
- Crestfield AM, Stein WH & Moore S.** (1962). On the aggregation of bovine pancreatic ribonuclease. *Arch Biochem Biophys* **Suppl 1**: 217-222.
- Cuchillo CM, Pares X, Guasch A, Barman T, Travers F & Nogues MV.** (1993). The role of 2',3'-cyclic phosphodiesterases in the bovine pancreatic ribonuclease A catalysed cleavage of RNA: intermediates or products? *FEBS Lett* **333**: 207-210.
- Cuchillo CM, Moussaoui M, Barman T, Travers F & Nogues MV.** (2002). The exo- or endonucleolytic preference of bovine pancreatic ribonuclease A depends on its subsites structure and on the substrate size. *Protein Sci* **11**: 117-128.
- Cui XY, Fu PF, Pan DN, Zhao Y, Zhao J & Zhao BC.** (2003). The antioxidant effects of ribonuclease inhibitor. *Free Radic Res* **37**: 1079-1085.
- D'Alessio G, Di Donato A, Parente A & Piccoli R.** (1991). Seminal RNase: a unique member of the ribonuclease superfamily. *Trends Biochem Sci* **16**: 104-106.
- D'Alessio G, Di Donato A, Mazzarella L & Piccoli R.** (1997). Seminal ribonuclease: The importance of diversity. In *Ribonucleases: Structures and Functions*. (eds. D'Alessio G, and Riordan JF), pp. 383-423. Academic Press, New York.
- Darzynkiewicz Z, Carter SP, Mikulski SM, Ardelt WJ & Shogen K.** (1988). Cytostatic and cytotoxic effects of Pannon (P-30 Protein), a novel anticancer agent. *Cell Tissue Kinet* **21**: 169-182.
- De Lorenzo C, Arciello A, Cozzolino R, Palmer DB, Laccetti P, Piccoli R & D'Alessio G.** (2004). A fully human antitumor immunoRNase selective for ErbB-2-positive carcinomas. *Cancer Res* **64**: 4870-4874.
- De Lorenzo C, Di Malta C, Cali G, Troise F, Nitsch L & D'Alessio G.** (2007). Intracellular route and mechanism of action of ERB-hRNase, a human anti-ErbB2 anticancer immunoagent. *FEBS Lett* **581**: 296-300.
- DeLano WL.** (2002). The PyMOL Molecular Graphics System. DeLano Scientific, Palo Alto, CA, USA. <http://www.pymol.org>.
- delCardayré SB & Raines RT.** (1995). A residue to residue hydrogen bond mediates the nucleotide specificity of ribonuclease A. *J Mol Biol* **252**: 328-336.
- delCardayré SB, Ribo M, Yokel EM, Quirk DJ, Rutter WJ & Raines RT.** (1995). Engineering ribonuclease A: production, purification and characterization of wild-type enzyme and mutants at Gln11. *Protein Eng* **8**: 261-273.
- Di Donato A, Cafaro V & D'Alessio G.** (1994). Ribonuclease A can be transformed into a dimeric ribonuclease with antitumor activity. *J Biol Chem* **269**: 17394-17396.
- Dickson KA, Haigis MC & Raines RT.** (2005). Ribonuclease inhibitor: structure and function. *Prog Nucleic Acid Res Mol Biol* **80**: 349-374.
- Edelman GM, Gall WE, Waxdal MJ & Konigsberg WH.** (1968). The covalent structure of a human gamma G-immunoglobulin. I. Isolation and characterization of the whole molecule, the polypeptide chains, and the tryptic fragments. *Biochemistry* **7**: 1950-1958.
- Ehrlich P.** (1956). The relations existing between chemical constitution, distribution and pharmacological action. In *The Collected Papers of Paul Ehrlich*. (eds. Himmelweite IF, Marquardt M, and Dale H), pp. 596-618. Pergamon Press, London-New York.

-
- Ellis RJ & Minton AP.** (2006). Protein aggregation in crowded environments. *Biol Chem* **387**: 485-497.
- Emsley P & Cowtan K.** (2004). Coot: model-building tools for molecular graphics. *Acta Crystallogr D Biol Crystallogr* **60**: 2126-2132.
- Fairbanks G, Steck TL & Wallach DF.** (1971). Electrophoretic analysis of the major polypeptides of the human erythrocyte membrane. *Biochemistry* **10**: 2606-2617.
- Fersht A.** (1999). *Structure and Mechanism in Protein Science: A Guide to Enzyme Catalysis and Protein Folding*. W. H. Freeman and Company, New York.
- Firket H, Chevremont-Comhaire S & Chevremont M.** (1955). Action of ribonuclease on living cells in vitro and synthesis of deoxyribonucleic acid. *Nature* **176**: 1075-1076.
- Fominaya JM & Hofsteenge J.** (1992). Inactivation of ribonuclease inhibitor by thiol-disulfide exchange. *J Biol Chem* **267**: 24655-24660.
- Frankel AE, Kreitman RJ & Sausville EA.** (2000). Targeted toxins. *Clin Cancer Res* **6**: 326-334.
- Fruchter RG & Crestfield AM.** (1965). Preparation and properties of two active forms of ribonuclease dimer. *J Biol Chem* **240**: 3868-3874.
- Fuchs SM & Raines RT.** (2004). Pathway for polyarginine entry into mammalian cells. *Biochemistry* **43**: 2438-2444.
- Fuchs SM & Raines RT.** (2005). Polyarginine as a multifunctional fusion tag. *Protein Sci* **14**: 1538-1544.
- Fuchs SM, Rutkoski TJ, Kung VM, Groeschl RT & Raines RT.** (2007). Increasing the potency of a cytotoxin with an arginine graft. *Protein Eng Des Sel* **20**: 505-509.
- Futami J, Maeda T, Kitazoe M, Nukui E, Tada H, Seno M, Kosaka M & Yamada H.** (2001). Preparation of potent cytotoxic ribonucleases by cationization: enhanced cellular uptake and decreased interaction with ribonuclease inhibitor by chemical modification of carboxyl groups. *Biochemistry* **40**: 7518-7524.
- Futami J, Nukui E, Maeda T, Kosaka M, Tada H, Seno M & Yamada H.** (2002). Optimum modification for the highest cytotoxicity of cationized ribonuclease. *J Biochem (Tokyo)* **132**: 223-228.
- Futami J, Kitazoe M, Maeda T, Nukui E, Sakaguchi M, Kosaka J, Miyazaki M, Kosaka M, Tada H, Seno M, Sasaki J, Huh NH, Namba M & Yamada H.** (2005). Intracellular delivery of proteins into mammalian living cells by polyethylenimine-cationization. *J Biosci Bioeng* **99**: 95-103.
- Gasset M, Martinez del Pozo A, Onaderra M & Gavilanes JG.** (1989). Study of the interaction between the antitumour protein alpha-sarcin and phospholipid vesicles. *Biochem J* **258**: 569-575.
- Gasset M, Onaderra M, Thomas PG & Gavilanes JG.** (1990). Fusion of phospholipid vesicles produced by the anti-tumour protein alpha-sarcin. *Biochem J* **265**: 815-822.
- Gaur D, Swaminathan S & Batra JK.** (2001). Interaction of human pancreatic ribonuclease with human ribonuclease inhibitor. Generation of inhibitor-resistant cytotoxic variants. *J Biol Chem* **276**: 24978-24984.
- George RA & Heringa J.** (2002). An analysis of protein domain linkers: their classification and role in protein folding. *Protein Eng* **15**: 871-879.

- Ghetie MA, Bright H & Vitetta ES.** (2001). Homodimers but not monomers of Rituxan (chimeric anti-CD20) induce apoptosis in human B-lymphoma cells and synergize with a chemotherapeutic agent and an immunotoxin. *Blood* **97**: 1392-1398.
- Gleich GJ, Loegering DA, Bell MP, Checkel JL, Ackerman SJ & McKean DJ.** (1986). Biochemical and functional similarities between human eosinophil-derived neurotoxin and eosinophil cationic protein: homology with ribonuclease. *Proc Natl Acad Sci USA* **83**: 3146-3150.
- Govindan SV, Griffiths GL, Hansen HJ, Horak ID & Goldenberg DM.** (2005). Cancer therapy with radiolabeled and drug/toxin-conjugated antibodies. *Technol Cancer Res Treat* **4**: 375-391.
- Green NM.** (1975). Avidin. *Adv Protein Chem* **29**: 85-133.
- Grossbard ML, Multani PS, Freedman AS, O'Day S, Gribben JG, Rhuda C, Neuberg D & Nadler LM.** (1999). A Phase II study of adjuvant therapy with anti-B4-blocked ricin after autologous bone marrow transplantation for patients with relapsed B-cell non-Hodgkin's lymphoma. *Clin Cancer Res* **5**: 2392-2398.
- Gullberg U, Widegren B, Arnason U, Egesten A & Olsson I.** (1986). The cytotoxic eosinophil cationic protein (ECP) has ribonuclease activity. *Biochem Biophys Res Commun* **139**: 1239-1242.
- Haigis MC, Kurten EL, Abel RL & Raines RT.** (2002). KFERQ sequence in ribonuclease A-mediated cytotoxicity. *J Biol Chem* **277**: 11576-11581.
- Haigis MC, Kurten EL & Raines RT.** (2003). Ribonuclease inhibitor as an intracellular sentry. *Nucleic Acids Res* **31**: 1024-1032.
- Haigis MC & Raines RT.** (2003). Secretory ribonucleases are internalized by a dynamin-independent endocytic pathway. *J Cell Sci* **116**: 313-324.
- Halicka HD, Murakami T, Papageorgio CN, Mittelman A, Mikulski SM, Shogen K & Darzynkiewicz Z.** (2000). Induction of differentiation of leukaemic (HL-60) or prostate cancer (LNCaP, JCA-1) cells potentiates apoptosis triggered by onconase. *Cell Prolif* **33**: 407-417.
- Harries M & Smith I.** (2002). The development and clinical use of trastuzumab (Herceptin). *Endocr Relat Cancer* **9**: 75-85.
- Hartley RW.** (1980). Homology between prokaryotic and eukaryotic ribonucleases. *J Mol Evol* **15**: 355-358.
- Hinman LM, Hamann PR, Wallace R, Menendez AT, Durr FE & Upeslakis J.** (1993). Preparation and characterization of monoclonal antibody conjugates of the calicheamicins: a novel and potent family of antitumor antibiotics. *Cancer Res* **53**: 3336-3342.
- Hofsteenge J, Kieffer B, Matthies R, Hemmings BA & Stone SR.** (1988). Amino acid sequence of the ribonuclease inhibitor from porcine liver reveals the presence of leucine-rich repeats. *Biochemistry* **27**: 8537-8544.
- Hofsteenge J.** (1997). Ribonuclease inhibitor. In *Ribonucleases: Structures and Functions*. (eds. D'Alessio G, and Riordan JF), pp. 621-658. Academic Press, New York.
- Ilinskaya ON, Dreyer F, Mitkevich VA, Shaw KL, Pace CN & Makarov AA.** (2002). Changing the net charge from negative to positive makes ribonuclease Sa cytotoxic. *Protein Sci* **11**: 2522-2525.

- Irie M, Nitta K & Nonaka T.** (1998). Biochemistry of frog ribonucleases. *Cell Mol Life Sci* **54**: 775-784.
- Iyer S, Holloway DE, Kumar K, Shapiro R & Acharya KR.** (2005). Molecular recognition of human eosinophil-derived neurotoxin (RNase 2) by placental ribonuclease inhibitor. *J Mol Biol* **347**: 637-655.
- Izquierdo MA, Scheffer GL, Flens MJ, Giaccone G, Broxterman HJ, Meijer CJ, van der Valk P & Scheper RJ.** (1996). Broad distribution of the multidrug resistance-related vault lung resistance protein in normal human tissues and tumors. *Am J Pathol* **148**: 877-887.
- James AM, Ambrose EJ & Lowick JH.** (1956). Differences between the electrical charge carried by normal and homologous tumour cells. *Nature* **177**: 576-577.
- James R, Kleanthous C & Moore GR.** (1996). The biology of E colicins: paradigms and paradoxes. *Microbiology* **142 (Pt 7)**: 1569-1580.
- Joensuu H.** (2008). Systemic chemotherapy for cancer: from weapon to treatment. *Lancet Oncol* **9**: 304.
- Johannes L & Decaudin D.** (2005). Protein toxins: intracellular trafficking for targeted therapy. *Gene Ther* **12**: 1360-1368.
- Johnson P & Glennie M.** (2003). The mechanisms of action of rituximab in the elimination of tumor cells. *Semin Oncol* **30**: 3-8.
- Johnson RJ, McCoy JG, Bingman CA, Phillips GN, Jr. & Raines RT.** (2007). Inhibition of human pancreatic ribonuclease by the human ribonuclease inhibitor protein. *J Mol Biol* **368**: 434-449.
- Jones TA, Zou JY, Cowan SW & Kjeldgaard M.** (1991). Improved methods for building protein models in electron density maps and the location of errors in these models. *Acta Crystallogr A* **47 (Pt 2)**: 110-119.
- Juan G, Ardelt B, Li X, Mikulski SM, Shogen K, Ardelt W, Mittelman A & Darzynkiewicz Z.** (1998). G1 arrest of U937 cells by onconase is associated with suppression of cyclin D3 expression, induction of p16INK4A, p21WAF1/CIP1 and p27KIP and decreased pRb phosphorylation. *Leukemia* **12**: 1241-1248.
- Juliano RL & Ling V.** (1976). A surface glycoprotein modulating drug permeability in Chinese hamster ovary cell mutants. *Biochim Biophys Acta* **455**: 152-162.
- Kabsch W.** (1993). Automatic processing of rotation diffraction data from crystals of initially unknown symmetry and cell constants. *J Appl Cryst* **26**: 795-800.
- Kamiya Y, Oyama F, Oyama R, Sakakibara F, Nitta K, Kawauchi H, Takayanagi Y & Titani K.** (1990). Amino acid sequence of a lectin from Japanese frog (*Rana japonica*) eggs. *J Biochem* **108**: 139-143.
- Kao R & Davies J.** (1999). Molecular dissection of mitogillin reveals that the fungal ribotoxins are a family of natural genetically engineered ribonucleases. *J Biol Chem* **274**: 12576-12582.
- Kartha G, Bello J & Harker D.** (1967). Tertiary structure of ribonuclease. *Nature* **213**: 862-865.
- Kelemen BR, Klink TA, Behlke MA, Eubanks SR, Leland PA & Raines RT.** (1999). Hypersensitive substrate for ribonucleases. *Nucleic Acids Res* **27**: 3696-3701.

-
- Kim JS, Souček J, Matoušek J & Raines RT.** (1995a). Structural basis for the biological activities of bovine seminal ribonuclease. *J Biol Chem* **270**: 10525-10530.
- Kim JS, Souček J, Matoušek J & Raines RT.** (1995b). Mechanism of ribonuclease cytotoxicity. *J Biol Chem* **270**: 31097-31102.
- Kim JS, Souček J, Matoušek J & Raines RT.** (1995c). Catalytic activity of bovine seminal ribonuclease is essential for its immunosuppressive and other biological activities. *Biochem J* **308 (Pt 2)**: 547-550.
- Kobe B & Deisenhofer J.** (1993). Crystal structure of porcine ribonuclease inhibitor, a protein with leucine-rich repeats. *Nature* **366**: 751-756.
- Kobe B & Deisenhofer J.** (1995). A structural basis of the interactions between leucine-rich repeats and protein ligands. *Nature* **374**: 183-186.
- Kobe B & Deisenhofer J.** (1996). Mechanism of ribonuclease inhibition by ribonuclease inhibitor protein based on the crystal structure of its complex with ribonuclease A. *J Mol Biol* **264**: 1028-1043.
- Köhler G & Milstein C.** (1975). Continuous cultures of fused cells secreting antibody of predefined specificity. *Nature* **256**: 495-497.
- Kojima K.** (1993). Molecular aspects of the plasma membrane in tumor cells. *Nagoya J Med Sci* **56**: 1-18.
- Krauss J, Arndt MA, Vu BK, Newton DL, Seeber S & Rybak SM.** (2005). Efficient killing of CD22+ tumor cells by a humanized diabody-RNase fusion protein. *Biochem Biophys Res Commun* **331**: 595-602.
- Laemmli UK.** (1970). Cleavage of structural proteins during the assembly of the head of bacteriophage T4. *Nature* **227**: 680-685.
- Laskowski RA, MacArthur MW, Moss DS & Thornton JM.** (1993). PROCHECK: a program to check the stereochemical quality of protein structures. *J Appl Cryst* **26**: 283-291.
- Ledoux L & Baltus E.** (1954). The effects of ribonuclease on cells of Ehrlich carcinoma. *Experientia* **10**: 500-501.
- Ledoux L, Le Clerc J & Vander-Haeghe F.** (1954). Influence of ribonuclease on the division of amphibian eggs. *Nature* **174**: 793-794.
- Ledoux L.** (1955a). Action of ribonuclease on two solid tumours in vivo. *Nature* **176**: 36-37.
- Ledoux L.** (1955b). Action of ribonuclease on certain ascites tumours. *Nature* **175**: 258-259.
- Ledoux L & Revell SH.** (1955). Action of ribonuclease on neoplastic growth. I. Chemical aspects of normal tumour growth: the Landschutz ascites tumour. *Biochim Biophys Acta* **18**: 416-426.
- Ledoux L.** (1956). Action of ribonuclease on neoplastic growth. II. Action on Landschutz ascites cells in vitro. *Biochim Biophys Acta* **20**: 369-377.
- Lee FS, Fox EA, Zhou HM, Strydom DJ & Vallee BL.** (1988). Primary structure of human placental ribonuclease inhibitor. *Biochemistry* **27**: 8545-8553.
- Lee FS, Auld DS & Vallee BL.** (1989a). Tryptophan fluorescence as a probe of placental ribonuclease inhibitor binding to angiogenin. *Biochemistry* **28**: 219-224.

-
- Lee FS, Shapiro R & Vallee BL.** (1989b). Tight-binding inhibition of angiogenin and ribonuclease A by placental ribonuclease inhibitor. *Biochemistry* **28**: 225-230.
- Lee I, Lee YH, Mikulski SM & Shogen K.** (2003). Effect of ONCONASE +/- tamoxifen on ASPC-1 human pancreatic tumors in nude mice. *Adv Exp Med Biol* **530**: 187-196.
- Lee I & Shogen K.** (2008). Mechanisms of enhanced tumoricidal efficacy of multiple small dosages of ranpirnase, the novel cytotoxic ribonuclease, on lung cancer. *Cancer Chemother Pharmacol* **62**: 337-346.
- Lee JE & Raines RT.** (2005). Cytotoxicity of bovine seminal ribonuclease: monomer versus dimer. *Biochemistry* **44**: 15760-15767.
- Lee JE & Raines RT.** (2008). Ribonucleases as novel chemotherapeutics : the ranpirnase example. *BioDrugs* **22**: 53-58.
- Leenders RG, Damen EW, Bijsterveld EJ, Scheeren HW, Houba PH, van der Meulen-Muileman IH, Boven E & Haisma HJ.** (1999). Novel anthracycline-spacer-beta-glucuronide,-beta-glucoside, and -beta-galactoside prodrugs for application in selective chemotherapy. *Bioorg Med Chem* **7**: 1597-1610.
- Leich F, Köditz J, Ulbrich-Hofmann R & Arnold U.** (2006). Tandemization endows bovine pancreatic ribonuclease with cytotoxic activity. *J Mol Biol* **358**: 1305-1313.
- Leich F, Stöhr N, Rietz A, Ulbrich-Hofmann R & Arnold U.** (2007). Endocytotic internalization as a crucial factor for the cytotoxicity of ribonucleases. *J Biol Chem* **282**: 27640-27646.
- Leland PA, Schultz LW, Kim BM & Raines RT.** (1998a). Ribonuclease A variants with potent cytotoxic activity. *Proc Natl Acad Sci U S A* **95**: 10407-10412.
- Leland PA, Schultz LW, Kim BM & Raines RT.** (1998b). Ribonuclease A variants with potent cytotoxic activity. *Proc Natl Acad Sci USA* **95**: 10407-10412.
- Leland PA, Staniszewski KE, Kim B & Raines RT.** (2000). A synapomorphic disulfide bond is critical for the conformational stability and cytotoxicity of an amphibian ribonuclease. *FEBS Lett* **477**: 203-207.
- Leland PA & Raines RT.** (2001). Cancer chemotherapy - ribonucleases to the rescue. *Chem Biol* **8**: 405-413.
- Leland PA, Staniszewski KE, Kim BM & Raines RT.** (2001). Endowing human pancreatic ribonuclease with toxicity for cancer cells. *J Biol Chem* **276**: 43095-43102.
- Libonati M.** (2004). Biological actions of the oligomers of ribonuclease A. *Cell Mol Life Sci* **61**: 2431-2436.
- Libonati M & Gotte G.** (2004). Oligomerization of bovine ribonuclease A: structural and functional features of its multimers. *Biochem J* **380**: 311-327.
- Lilie H, Schwarz E & Rudolph R.** (1998). Advances in refolding of proteins produced in *E. coli*. *Curr Opin Biotechnol* **9**: 497-501.
- Liu Y, Hart PJ, Schlunegger MP & Eisenberg D.** (1998). The crystal structure of a 3D domain-swapped dimer of RNase A at a 2.1-Å resolution. *Proc Natl Acad Sci USA* **95**: 3437-3442.
- Liu Y, Gotte G, Libonati M & Eisenberg D.** (2001). A domain-swapped RNase A dimer with implications for amyloid formation. *Nat Struct Biol* **8**: 211-214.

-
- Makarov AA & Ilinskaya ON.** (2003). Cytotoxic ribonucleases: molecular weapons and their targets. *FEBS Lett* **540**: 15-20.
- Mancheno JM, Gasset M, Onaderra M, Gavilanes JG & D'Alessio G.** (1994). Bovine seminal ribonuclease destabilizes negatively charged membranes. *Biochem Biophys Res Commun* **199**: 119-124.
- Martinez-Ruiz A, Garcia-Ortega L, Kao R, Lacadena J, Onaderra M, Mancheno JM, Davies J, Martinez del Pozo A & Gavilanes JG.** (2001). RNase U2 and alpha-sarcin: a study of relationships. *Methods Enzymol* **341**: 335-351.
- Mastronicola MR, Piccoli R & D'Alessio G.** (1995). Key extracellular and intracellular steps in the antitumor action of seminal ribonuclease. *Eur J Biochem* **230**: 242-249.
- Matoušek J.** (1973). The effect of bovine seminal ribonuclease (AS RNase) on cells of Crocker tumour in mice. *Experientia* **29**: 858-859.
- Matoušek J, Poučkova P, Souček J & Skvor J.** (2002). PEG chains increase aspermatogenic and antitumor activity of RNase A and BS-RNase enzymes. *J Control Release* **82**: 29-37.
- Matoušek J, Gotte G, Poučkova P, Souček J, Slavík T, Vottariello F & Libonati M.** (2003a). Antitumor activity and other biological actions of oligomers of ribonuclease A. *J Biol Chem* **278**: 23817-23822.
- Matoušek J, Souček J, Slavík T, Tománek M, Lee JE & Raines RT.** (2003b). Comprehensive comparison of the cytotoxic activities of onconase and bovine seminal ribonuclease. *Comp Biochem Physiol C Toxicol Pharmacol* **136**: 343-356.
- Mazzarella L, Capasso S, Demasi D, Di Lorenzo G, Mattia CA & Zagari A.** (1993). Bovine seminal ribonuclease: structure at 1.9 Å resolution. *Acta Crystallogr D Biol Crystallogr* **49**: 389-402.
- McClure BA, Haring V, Ebert PR, Anderson MA, Simpson RJ, Sakiyama F & Clarke AE.** (1989). Style self-incompatibility gene products of *Nicotiana glauca* are ribonucleases. *Nature* **342**: 955-957.
- McCoy AJ, Grosse-Kunstleve RW, Storoni LC & Read RJ.** (2005). Likelihood-enhanced fast translation functions. *Acta Crystallogr D Biol Crystallogr* **61**: 458-464.
- McElligott MA, Miao P & Dice JF.** (1985). Lysosomal degradation of ribonuclease A and ribonuclease S-protein microinjected into the cytosol of human fibroblasts. *J Biol Chem* **260**: 11986-11993.
- McLaren DJ, McKean JR, Olsson I, Venges P & Kay AB.** (1981). Morphological studies on the killing of schistosomula of *Schistosoma mansoni* by human eosinophil and neutrophil cationic proteins in vitro. *Parasite Immunol* **3**: 359-373.
- Messmann RA, Vitetta ES, Headlee D, Senderowicz AM, Figg WD, Schindler J, Michiel DF, Creekmore S, Steinberg SM, Kohler D, Jaffe ES, Stetler-Stevenson M, Chen H, Ghetie V & Sausville EA.** (2000). A phase I study of combination therapy with immunotoxins IgG-HD37-deglycosylated ricin A chain (dgA) and IgG-RFB4-dgA (Combotox) in patients with refractory CD19(+), CD22(+) B cell lymphoma. *Clin Cancer Res* **6**: 1302-1313.
- Mikulski SM, Ardelt W, Shogen K, Bernstein EH & Menduke H.** (1990a). Striking increase of survival of mice bearing M109 Madison carcinoma treated with a novel protein from amphibian embryos. *J Natl Cancer Inst* **82**: 151-153.

- Mikulski SM, Viera A, Ardelt W, Menduke H & Shogen K.** (1990b). Tamoxifen and trifluoroperazine (Stelazine) potentiate cytostatic/cytotoxic effects of P-30 protein, a novel protein possessing anti-tumor activity. *Cell Tissue Kinet* **23**: 237-246.
- Mikulski SM, Viera A, Darzynkiewicz Z & Shogen K.** (1992). Synergism between a novel amphibian oocyte ribonuclease and lovastatin in inducing cytostatic and cytotoxic effects in human lung and pancreatic carcinoma cell lines. *Br J Cancer* **66**: 304-310.
- Mikulski SM, Costanzi JJ, Vogelzang NJ, McCachren S, Taub RN, Chun H, Mittelman A, Panella T, Puccio C, Fine R & Shogen K.** (2002). Phase II trial of a single weekly intravenous dose of ranpirnase in patients with unresectable malignant mesothelioma. *J Clin Oncol* **20**: 274-281.
- Mitchell DJ, Kim DT, Steinman L, Fathman CG & Rothbard JB.** (2000). Polyarginine enters cells more efficiently than other polycationic homopolymers. *J Pept Res* **56**: 318-325.
- Moenner M, Vosoghi M, Ryazantsev S & Glitz DG.** (1998). Ribonuclease inhibitor protein of human erythrocytes: characterization, loss of activity in response to oxidative stress, and association with Heinz bodies. *Blood Cells Mol Dis* **24**: 149-164.
- Mosimann SC, Ardelt W & James MN.** (1994). Refined 1.7 Å X-ray crystallographic structure of P-30 protein, an amphibian ribonuclease with anti-tumor activity. *J Mol Biol* **236**: 1141-1153.
- Murthy BS & Sirdeshmukh R.** (1992). Sensitivity of monomeric and dimeric forms of bovine seminal ribonuclease to human placental ribonuclease inhibitor. *Biochem J* **281 (Pt 2)**: 343-348.
- Murthy BS, De Lorenzo C, Piccoli R, D'Alessio G & Sirdeshmukh R.** (1996). Effects of protein RNase inhibitor and substrate on the quaternary structures of bovine seminal RNase. *Biochemistry* **35**: 3880-3885.
- Nadano D, Yasuda T, Takeshita H, Uchide K & Kishi K.** (1994). Purification and characterization of human brain ribonuclease inhibitor. *Arch Biochem Biophys* **312**: 421-428.
- Naddeo M, Vitagliano L, Russo A, Gotte G, D'Alessio G & Sorrentino S.** (2005). Interactions of the cytotoxic RNase A dimers with the cytosolic ribonuclease inhibitor. *FEBS Lett* **579**: 2663-2668.
- Neff NT, Bourret L, Miao P & Dice JF.** (1981). Degradation of proteins microinjected into IMR-90 human diploid fibroblasts. *J Cell Biol* **91**: 184-194.
- Nesterenko MV, Tilley M & Upton SJ.** (1994). A simple modification of Blum's silver stain method allows for 30 minute detection of proteins in polyacrylamide gels. *J Biochem Biophys Methods* **28**: 239-242.
- Newton DL, Ilercil O, Laske DW, Oldfield E, Rybak SM & Youle RJ.** (1992). Cytotoxic ribonuclease chimeras. Targeted tumoricidal activity *in vitro* and *in vivo*. *J Biol Chem* **267**: 19572-19578.
- Newton DL, Xue Y, Olson KA, Fett JW & Rybak SM.** (1996). Angiogenin single-chain immunofusions: influence of peptide linkers and spacers between fusion protein domains. *Biochemistry* **35**: 545-553.
- Newton DL, Xue Y, Boque L, Wlodawer A, Kung HF & Rybak SM.** (1997). Expression and characterization of a cytotoxic human-frog chimeric ribonuclease: potential for cancer therapy. *Protein Eng* **10**: 463-470.

- Newton DL, Hansen HJ, Mikulski SM, Goldenberg DM & Rybak SM.** (2001). Potent and specific antitumor effects of an anti-CD22-targeted cytotoxic ribonuclease: potential for the treatment of non-Hodgkin lymphoma. *Blood* **97**: 528-535.
- Niculescu-Duvaz I, Friedlos F, Niculescu-Duvaz D, Davies L & Springer CJ.** (1999). Prodrugs for antibody- and gene-directed enzyme prodrug therapies (ADEPT and GDEPT). *Anticancer Drug Des* **14**: 517-538.
- Nitta K, Takayanagi G, Kawauchi H & Hakomori S.** (1987). Isolation and characterization of *Rana catesbeiana* lectin and demonstration of the lectin-binding glycoprotein of rodent and human tumor cell membranes. *Cancer Res* **47**: 4877-4883.
- Nitta K, Ozaki K, Ishikawa M, Furusawa S, Hosono M, Kawauchi H, Sasaki K, Takayanagi Y, Tsuiki S & Hakomori S.** (1994a). Inhibition of cell proliferation by *Rana catesbeiana* and *Rana japonica* lectins belonging to the ribonuclease superfamily. *Cancer Res* **54**: 920-927.
- Nitta K, Ozaki K, Tsukamoto Y, Furusawa S, Ohkubo Y, Takimoto H, Murata R, Hosono M, Hikichi N, Sasaki K & et al.** (1994b). Characterization of a *Rana catesbeiana* lectin-resistant mutant of leukemia P388 cells. *Cancer Res* **54**: 928-934.
- Notomista E, Catanzano F, Graziano G, Di Gaetano S, Barone G & Di Donato A.** (2001). Contribution of chain termini to the conformational stability and biological activity of onconase. *Biochemistry* **40**: 9097-9103.
- Notomista E, Mancheno JM, Crescenzi O, Di Donato A, Gavilanes J & D'Alessio G.** (2006). The role of electrostatic interactions in the antitumor activity of dimeric RNases. *Febs J* **273**: 3687-3697.
- Ogawa T, Tomita K, Ueda T, Watanabe K, Uozumi T & Masaki H.** (1999). A cytotoxic ribonuclease targeting specific transfer RNA anticodons. *Science* **283**: 2097-2100.
- Okabe Y, Katayama N, Iwama M, Watanabe H, Ohgi K, Irie M, Nitta K, Kawauchi H, Takayanagi Y, Oyama F & et al.** (1991). Comparative base specificity, stability, and lectin activity of two lectins from eggs of *Rana catesbeiana* and *R. japonica* and liver ribonuclease from *R. catesbeiana*. *J Biochem* **109**: 786-790.
- Olbricht CJ, Cannon JK, Garg LC & Tisher CC.** (1986). Activities of cathepsins B and L in isolated nephron segments from proteinuric and nonproteinuric rats. *Am J Physiol* **250**: F1055-1062.
- Olmo N, Turnay J, Gonzalez de Buitrago G, Lopez de Silanes I, Gavilanes JG & Lizarbe MA.** (2001). Cytotoxic mechanism of the ribotoxin alpha-sarcin. Induction of cell death via apoptosis. *Eur J Biochem* **268**: 2113-2123.
- Onaderra M, Mancheno JM, Gasset M, Lacadena J, Schiavo G, Martinez del Pozo A & Gavilanes JG.** (1993). Translocation of alpha-sarcin across the lipid bilayer of asolectin vesicles. *Biochem J* **295 (Pt 1)**: 221-225.
- Pace CN, Hebert EJ, Shaw KL, Schell D, Both V, Krajcikova D, Sevcik J, Wilson KS, Dauter Z, Hartley RW & Grimsley GR.** (1998). Conformational stability and thermodynamics of folding of ribonucleases Sa, Sa2 and Sa3. *J Mol Biol* **279**: 271-286.
- Papageorgiou AC, Shapiro R & Acharya KR.** (1997). Molecular recognition of human angiogenin by placental ribonuclease inhibitor - an X-ray crystallographic study at 2.0 Å resolution. *Embo J* **16**: 5162-5177.
- Pavlakakis N & Vogelzang NJ.** (2006). Ranpirnase - an antitumour ribonuclease: its potential role in malignant mesothelioma. *Expert Opin Biol Ther* **6**: 391-399.

- Piccoli R, Tamburrini M, Piccialli G, Di Donato A, Parente A & D'Alessio G.** (1992). The dual-mode quaternary structure of seminal RNase. *Proc Natl Acad Sci USA* **89**: 1870-1874.
- Piccoli R, Di Gaetano S, De Lorenzo C, Grauso M, Monaco C, Spalletti-Cernia D, Laccetti P, Cinatl J, Matoušek J & D'Alessio G.** (1999). A dimeric mutant of human pancreatic ribonuclease with selective cytotoxicity toward malignant cells. *Proc Natl Acad Sci USA* **96**: 7768-7773.
- Poučkova P, Skvor J, Gotte G, Vottariello F, Slavik JT, Matoušek J, Laurents DV, Libonati M & Souček J.** (2006). Some biological actions of PEG-conjugated RNase A oligomers. *Neoplasma* **53**: 79-85.
- Raines RT.** (1998). Ribonuclease A. *Chem Rev* **98**: 1045-1066.
- Recht L, Torres CO, Smith TW, Raso V & Griffin TW.** (1990). Transferrin receptor in normal and neoplastic brain tissue: implications for brain-tumor immunotherapy. *J Neurosurg* **72**: 941-945.
- Ribo M, delCardayre SB, Raines RT, de Llorens R & Cuchillo CM.** (1996). Production of human pancreatic ribonuclease in *Saccharomyces cerevisiae* and *Escherichia coli*. *Protein Expr Purif* **7**: 253-261.
- Rietz A.** (2006). Untersuchung der Proteolysestabilität der Ribonuklease A-Tandemenzyme. In *Diplomarbeit*. Martin-Luther-Universität Halle-Wittenberg, Halle.
- Riordan JF.** (1997). Structure and function of angiogenin. In *Ribonucleases: Structures and Functions*. (eds. D'Alessio G, and Riordan JF), pp. 445-489. Academic Press, New York.
- Rodriguez M, Torrent G, Bosch M, Rayne F, Dubremetz JF, Ribo M, Benito A, Vilanova M & Beaumelle B.** (2007). Intracellular pathway of Onconase that enables its delivery to the cytosol. *J Cell Sci* **120**: 1405-1411.
- Roth JS.** (1963). Ribonuclease activity and cancer: a review. *Cancer Res* **23**: 657-666.
- Rudolph R, Böhm G, Lilie H & Jaenicke R.** (1997). Folding Proteins. In *Protein Function: A Practical Approach*. (ed. Creighton TE), pp. 57-99. IRL press, Oxford.
- Rutkoski TJ, Kurten EL, Mitchell JC & Raines RT.** (2005). Disruption of shape-complementarity markers to create cytotoxic variants of ribonuclease A. *J Mol Biol* **354**: 41-54.
- Rybak SM, Saxena SK, Ackerman EJ & Youle RJ.** (1991). Cytotoxic potential of ribonuclease and ribonuclease hybrid proteins. *J Biol Chem* **266**: 21202-21207.
- Rybak SM, Pearson JW, Fogler WE, Volker K, Spence SE, Newton DL, Mikulski SM, Ardelt W, Riggs CW, Kung HF & Longo DL.** (1996). Enhancement of vincristine cytotoxicity in drug-resistant cells by simultaneous treatment with onconase, an antitumor ribonuclease. *J Natl Cancer Inst* **88**: 747-753.
- Rybak SM & Newton DL.** (1999). Natural and engineered cytotoxic ribonucleases: therapeutic potential. *Exp Cell Res* **253**: 325-335.
- Sacco G, Drickamer K & Wool IG.** (1983). The primary structure of the cytotoxin alpha-sarcin. *J Biol Chem* **258**: 5811-5818.
- Sambrook J, Fritsch EF & Maniatis T.** (1989). *Molecular Cloning - a laboratory manual*, 2nd ed. Cold Spring Harbor Laboratory Press, New York.

-
- Sanger F, Nicklen S & Coulson AR.** (1977). DNA sequencing with chain-terminating inhibitors. *Proc Natl Acad Sci USA* **74**: 5463-5467.
- Santoro MM & Bolen DW.** (1988). Unfolding free energy changes determined by the linear extrapolation method. 1. Unfolding of phenylmethanesulfonyl alpha-chymotrypsin using different denaturants. *Biochemistry* **27**: 8063-8068.
- Saxena SK, Rybak SM, Winkler G, Meade HM, McGray P, Youle RJ & Ackerman EJ.** (1991). Comparison of RNases and toxins upon injection into *Xenopus* oocytes. *J Biol Chem* **266**: 21208-21214.
- Saxena SK, Sirdeshmukh R, Ardelt W, Mikulski SM, Shogen K & Youle RJ.** (2002). Entry into cells and selective degradation of tRNAs by a cytotoxic member of the RNase A family. *J Biol Chem* **277**: 15142-15146.
- Scheffer GL, Wijngaard PL, Flens MJ, Izquierdo MA, Slovak ML, Pinedo HM, Meijer CJ, Clevers HC & Scheper RJ.** (1995). The drug resistance-related protein LRP is the human major vault protein. *Nat Med* **1**: 578-582.
- Schmid H, Lindmeier I, Schmitt H, Eissele R, Neuhaus G & Wehrmann M.** (1993). Nephrotoxicity of cyclosporine A in the rat. II. Reversible changes in intranephronal and urinary catalytic activities of N-acetyl-beta-D-glucosaminidase. *Ren Physiol Biochem* **16**: 222-232.
- Schmid H, Koop M, Utermann S, Lambacher L, Mayer P & Schaefer L.** (1997). Specific catalytic activity of cathepsin S in comparison to cathepsins B and L along the rat nephron. *Biol Chem* **378**: 61-69.
- Schmid H, Sauerbrei R, Schwarz G, Weber E, Kalbacher H & Driessen C.** (2002). Modulation of the endosomal and lysosomal distribution of cathepsins B, L and S in human monocytes/macrophages. *Biol Chem* **383**: 1277-1283.
- Schröter CJ, Braun M, Englert J, Beck H, Schmid H & Kalbacher H.** (1999). A rapid method to separate endosomes from lysosomal contents using differential centrifugation and hypotonic lysis of lysosomes. *J Immunol Methods* **227**: 161-168.
- Schulenburg C, Ardelt B, Ardelt W, Arnold U, Shogen K, Ulbrich-Hofmann R & Darzynkiewicz Z.** (2007). The interdependence between catalytic activity, conformational stability, and cytotoxicity of onconase. *Cancer Biol Ther* **6**: 1233-1239.
- Sela M & Anfinsen CB.** (1957). Some spectrophotometric and polarimetric experiments with ribonuclease. *Biochim Biophys Acta* **24**: 229-235.
- Shan D, Ledbetter JA & Press OW.** (1998). Apoptosis of malignant human B cells by ligation of CD20 with monoclonal antibodies. *Blood* **91**: 1644-1652.
- Sharkey RM & Goldenberg DM.** (2006). Targeted therapy of cancer: new prospects for antibodies and immunoconjugates. *CA Cancer J Clin* **56**: 226-243.
- Shirley BA.** (1995). Urea and guanidine hydrochloride denaturation curves. In *Protein Stability and Folding: Theory and Practice*. (ed. Shirley BA), pp. 177-190. Humana Press, Totowa.
- Shogen K & Yoan WK.** (1973). Antitumor activity in extracts of Leopard frog (*Rana pipiens*) embryos. In *27th Annual Eastern Colleges Science Conference*, State College, PA, USA.

- Shtil AA.** (2002). Emergence of multidrug resistance in leukemia cells during chemotherapy: mechanisms and prevention. *J Hematother Stem Cell Res* **11**: 231-241.
- Slivinsky GG, Hymer WC, Bauer J & Morrison DR.** (1997). Cellular electrophoretic mobility data: a first approach to a database. *Electrophoresis* **18**: 1109-1119.
- Smith MR, Newton DL, Mikulski SM & Rybak SM.** (1999). Cell cycle-related differences in susceptibility of NIH/3T3 cells to ribonucleases. *Exp Cell Res* **247**: 220-232.
- Smyth DG, Stein WH & Moore S.** (1963). The sequence of amino acid residues in bovine pancreatic ribonuclease: revisions and confirmations. *J Biol Chem* **238**: 227-234.
- Sonneveld P.** (2000). Multidrug resistance in haematological malignancies. *J Intern Med* **247**: 521-534.
- Sorrentino S, Barone R, Bucci E, Gotte G, Russo N, Libonati M & D'Alessio G.** (2000). The two dimeric forms of RNase A. *FEBS Lett* **466**: 35-39.
- Sponholz WR & Wunsch B.** (1980). Enzymatic determination of dihydroxyacetone in the presence of glycerol. *Z Lebensm Unters Forsch* **171**: 178-197.
- Spruyt M & Buquicchio F.** (1994). Gene Runner. Hastings Software, Inc., NY, USA.
- Stone MJ, Sausville EA, Fay JW, Headlee D, Collins RH, Figg WD, Stetler-Stevenson M, Jain V, Jaffe ES, Solomon D, Lush RM, Senderowicz A, Ghetie V, Schindler J, Uhr JW & Vitetta ES.** (1996). A phase I study of bolus versus continuous infusion of the anti-CD19 immunotoxin, IgG-HD37-dgA, in patients with B-cell lymphoma. *Blood* **88**: 1188-1197.
- Storrie B & Madden EA.** (1990). Isolation of subcellular organelles. *Methods Enzymol* **182**: 203-225.
- Suzuki M, Saxena SK, Boix E, Prill RJ, Vasandani VM, Ladner JE, Sung C & Youle RJ.** (1999). Engineering receptor-mediated cytotoxicity into human ribonucleases by steric blockade of inhibitor interaction. *Nat Biotechnol* **17**: 265-270.
- Swerts K, De Moerloose B, Dhooge C, Laureys G, Benoit Y & Philippe J.** (2006). Prognostic significance of multidrug resistance-related proteins in childhood acute lymphoblastic leukaemia. *Eur J Cancer* **42**: 295-309.
- Syrgios KN & Epenetos AA.** (1999). Antibody directed enzyme prodrug therapy (ADEPT): a review of the experimental and clinical considerations. *Anticancer Res* **19**: 605-613.
- Tada H, Onizuka M, Muraki K, Masuzawa W, Futami J, Kosaka M, Seno M & Yamada H.** (2004). Insertional-fusion of basic fibroblast growth factor endowed ribonuclease 1 with enhanced cytotoxicity by steric blockade of inhibitor interaction. *FEBS Lett* **568**: 39-43.
- Thomas JA, Rostand J & Gregoire J.** (1946). Inhibitory action of minimal doses of ribonuclease on the segmentation of the egg of the russet frog. *C.R. Acad. Sci., Paris* **222**: 1139-1141.
- Thrush GR, Lark LR, Clinchy BC & Vitetta ES.** (1996). Immunotoxins: an update. *Annu Rev Immunol* **14**: 49-71.
- Tomita K, Ogawa T, Uozumi T, Watanabe K & Masaki H.** (2000). A cytotoxic ribonuclease which specifically cleaves four isoaccepting arginine tRNAs at their anticodon loops. *Proc Natl Acad Sci USA* **97**: 8278-8283.

- Vallee BL & Riordan JF.** (1997). Organogenesis and angiogenin. *Cell Mol Life Sci* **53**: 803-815.
- van Meerten T, van Rijn RS, Hol S, Hagenbeek A & Ebeling SB.** (2006). Complement-induced cell death by rituximab depends on CD20 expression level and acts complementary to antibody-dependent cellular cytotoxicity. *Clin Cancer Res* **12**: 4027-4035.
- Vasandani VM, Burris JA & Sung C.** (1999). Reversible nephrotoxicity of onconase and effect of lysine pH on renal onconase uptake. *Cancer Chemother Pharmacol* **44**: 164-169.
- Vescia S, Tramontano D, Augusti-Tocco G & D'Alessio G.** (1980). In vitro studies on selective inhibition of tumor cell growth by seminal ribonuclease. *Cancer Res* **40**: 3740-3744.
- Vicentini AM, Kieffer B, Matthies R, Meyhack B, Hemmings BA, Stone SR & Hofsteenge J.** (1990). Protein chemical and kinetic characterization of recombinant porcine ribonuclease inhibitor expressed in *Saccharomyces cerevisiae*. *Biochemistry* **29**: 8827-8834.
- Viola M, Libra M, Callari D, Sinatra F, Spada D, Noto D, Emmanuele G, Romano F, Averna M, Pezzino FM, Stivala F & Travali S.** (2005). Bovine seminal ribonuclease is cytotoxic for both malignant and normal telomerase-positive cells. *Int J Oncol* **27**: 1071-1077.
- Vogelzang NJ, Aklilu M, Stadler WM, Dumas MC & Mikulski SM.** (2001). A phase II trial of weekly intravenous ranpirnase (Onconase), a novel ribonuclease in patients with metastatic kidney cancer. *Invest New Drugs* **19**: 255-260.
- Wlodawer A, Bott R & Sjolín L.** (1982). The refined crystal structure of ribonuclease A at 2.0 Å resolution. *J Biol Chem* **257**: 1325-1332.
- Wlodawer A, Svensson LA, Sjolín L & Gilliland GL.** (1988). Structure of phosphate-free ribonuclease A refined at 1.26 Å. *Biochemistry* **27**: 2705-2717.
- Wool IG, Gluck A & Endo Y.** (1992). Ribotoxin recognition of ribosomal RNA and a proposal for the mechanism of translocation. *Trends Biochem Sci* **17**: 266-269.
- Wu Y, Mikulski SM, Ardelt W, Rybak SM & Youle RJ.** (1993). A cytotoxic ribonuclease. Study of the mechanism of onconase cytotoxicity. *J Biol Chem* **268**: 10686-10693.
- Wu Y, Saxena SK, Ardelt W, Gadina M, Mikulski SM, De Lorenzo C, D'Alessio G & Youle RJ.** (1995). A study of the intracellular routing of cytotoxic ribonucleases. *J Biol Chem* **270**: 17476-17481.
- Yoshida H.** (2001). The ribonuclease T1 family. *Methods Enzymol* **341**: 28-41.
- Youle RJ & D'Alessio G.** (1997). Antitumor RNases. In *Ribonucleases: Structures and Functions*. (eds. D'Alessio G, and Riordan JF), pp. 491-514. Academic Press, New York.
- Zafir-Lavie I, Michaeli Y & Reiter Y.** (2007). Novel antibodies as anticancer agents. *Oncogene* **26**: 3714-3733.
- Zewe M, Rybak SM, Dubel S, Coy JF, Welschhof M, Newton DL & Little M.** (1997). Cloning and cytotoxicity of a human pancreatic RNase immunofusion. *Immunotechnology* **3**: 127-136.