

# **PROGNOSTIC SIGNIFICANCE OF CD200 EXPRESSION IN PLASMA CELL MYELOMA**

*Thesis*

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*By*

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*This work is dedicated to . . .*

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owe everything I ever did in my life.*

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# LIST OF CONTENTS

| Title                                                                       | Page No. |
|-----------------------------------------------------------------------------|----------|
| Introduction .....                                                          | 1        |
| Aim of the Work.....                                                        | 3        |
| Review of Literature                                                        |          |
| ▪ I. Multiple Myeloma .....                                                 | 4        |
| A) Definition Of Multiple Myeloma: .....                                    | 4        |
| B) Epidemiology And Incidence Of Multiple Myeloma: .....                    | 5        |
| C) Etiologic Factors Of Multiple Myeloma: .....                             | 5        |
| D) Pathophysiology Of Multiple Myeloma: .....                               | 7        |
| E) Clinical Presentation Of Multiple Myeloma: .....                         | 19       |
| F) Diagnosis Of Multiple Myeloma: .....                                     | 24       |
| G) Work-Up And Diagnostic Criteria Of Multiple Myeloma: .....               | 40       |
| H) Staging Systems Of Multiple Myeloma: .....                               | 43       |
| I) Prognostic Factors In Multiple Myeloma: .....                            | 45       |
| J) Treatment Of Multiple Myeloma: .....                                     | 49       |
| ▪ II. CD200 .....                                                           | 56       |
| A) Definition: .....                                                        | 56       |
| B) Structure: .....                                                         | 56       |
| C) CD200 Gene: .....                                                        | 59       |
| D) CD200 Receptor (CD200R): .....                                           | 60       |
| E) CD200 and CD200R Interaction: .....                                      | 61       |
| F) CD200 and Apoptosis: .....                                               | 64       |
| G) Diagnostic Usefulness And Prognostic Impact of CD200<br>Expression ..... | 66       |
| Patients And Methods .....                                                  | 76       |
| Results .....                                                               | 82       |
| Discussion .....                                                            | 101      |
| Summary And Conclusion .....                                                | 113      |
| Recommendations .....                                                       | 116      |
| References .....                                                            | 117      |
| Arabic Summary.....                                                         | ---      |

## LIST OF TABLES

| Tab. No.             | Title                                                                                                                   | Page No. |
|----------------------|-------------------------------------------------------------------------------------------------------------------------|----------|
| <b>Table (1):</b>    | Summary of the basic immunophenotypic characteristics of normal and neoplastic plasma cells .....                       | 31       |
| <b>Table (2):</b>    | Summary of the basic immunophenotypic differences between the cells of plasmacytoid lymphoma and multiple myeloma ..... | 32       |
| <b>Table (3):</b>    | Reagents of clinical utility in the evaluation of plasma cell disorders .....                                           | 33       |
| <b>Table (4):</b>    | Diagnostic criteria for plasma cell disorders .....                                                                     | 42       |
| <b>Table (5):</b>    | The Durie-Salmon staging system.....                                                                                    | 44       |
| <b>Table (6):</b>    | The International Staging System (ISS) .....                                                                            | 45       |
| <b>Table (7):</b>    | Selected poor prognostic factors in MM .....                                                                            | 49       |
| <b>Table (8):</b>    | International Myeloma Working Group uniform response criteria for MM .....                                              | 51       |
| <b>Table (9):</b>    | Tissue distribution of CD200 and CD200R.....                                                                            | 61       |
| <b>Table (10a):</b>  | Clinical data of the 25 newly diagnosed PCM patients group .....                                                        | 88       |
| <b>Table (10-b):</b> | Clinical data of the 9 residual disease PCM patients group.....                                                         | 89       |
| <b>Table (11a):</b>  | Laboratory data of the 25 newly diagnosed PCM patients group .....                                                      | 90       |
| <b>Table (11-b):</b> | Laboratory data of the 9 residual disease PCM patients group .....                                                      | 91       |

## LIST OF TABLES (cont..)

| Tab. No.           | Title                                                                                                 | Page No. |
|--------------------|-------------------------------------------------------------------------------------------------------|----------|
| <b>Table (12):</b> | Comparison between newly diagnosed & residual disease patients as regards clinical data.....          | 92       |
| <b>Table (13):</b> | Comparison between newly diagnosed and residual disease patients as regards Laboratory data.....      | 93       |
| <b>Table (14):</b> | Comparison between CD200 (+) & CD200 (-) PCMs as regards clinical data.....                           | 94       |
| <b>Table (15):</b> | Comparison between CD200 (+) & CD200 (-) PCMs as regards Laboratory data.....                         | 95       |
| <b>Table (16):</b> | Correlation studies between CD200% and other studied parameters.....                                  | 96       |
| <b>Table (17):</b> | Comparison between alive & dead cases among newly diagnosed patients as regards clinical data.....    | 97       |
| <b>Table (18):</b> | Comparison between alive & dead cases among newly diagnosed patients as regards laboratory data ..... | 98       |

## LIST OF FIGURES

| <b>Fig. No.</b>     | <b>Title</b>                                                                                          | <b>Page No.</b> |
|---------------------|-------------------------------------------------------------------------------------------------------|-----------------|
| <b>Figure (1):</b>  | The development of normal plasma cells .....                                                          | 8               |
| <b>Figure (2):</b>  | Pathogenesis of multiple myeloma.....                                                                 | 10              |
| <b>Figure (3):</b>  | Peripheral blood from patient with MM.....                                                            | 25              |
| <b>Figure (4):</b>  | BM examination of patient with MM.....                                                                | 27              |
| <b>Figure (5):</b>  | The immunophenotype of normal plasma cells.....                                                       | 29              |
| <b>Figure (6):</b>  | Serum protein electrophoresis in patient with MM, showing a paraprotein (peak in the gamma zone)..... | 35              |
| <b>Figure (7):</b>  | Immunofixation identifying the M-protein as IgG kappa .....                                           | 37              |
| <b>Figure (8):</b>  | Lateral X-ray of the skull showing multiple lytic lesions .....                                       | 40              |
| <b>Figure (9):</b>  | Screening and diagnosis of multiple myeloma .....                                                     | 41              |
| <b>Figure (10):</b> | CD200-CD200R .....                                                                                    | 57              |
| <b>Figure (11):</b> | Immunoglobulin domain of CD200.....                                                                   | 58              |
| <b>Figure (12):</b> | Location of CD200 gene on chromosome 3 .....                                                          | 59              |
| <b>Figure (13):</b> | Proposed model for CD200R-mediated inhibition of mast cell activation. ....                           | 64              |
| <b>Figure (14):</b> | A hypothetical model of how CD200 is involved in cancer stem cell (CSC) immunoevasion.....            | 70              |
| <b>Figure (15):</b> | Systemic administration of DX109 inhibited macrophage activation and suppressed EAU.....              | 74              |

## LIST OF FIGURES (cont..)

| Fig. No.            | Title                                                                                                                                                      | Page No. |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| <b>Figure (16):</b> | Flow cytometric histogram of a newly diagnosed PCM male patient “case n.o 10” .....                                                                        | 99       |
| <b>Figure (17):</b> | Flow cytometric histogram of a newly diagnosed PCM female patient who died during the period of the study “case n.o 16” .....                              | 99       |
| <b>Figure (18):</b> | Flow cytometric histogram of a PCM male patient in relapse “case n.o 34” .....                                                                             | 100      |
| <b>Figure (19):</b> | ROC curve showing the prognostic cut off level of CD200% for predicting PCM patients at risk of developing residual disease after standard treatment. .... | 100      |

## LIST OF ABBREVIATIONS

| <b>Abbrev.</b> | <b>Full term</b>                     |
|----------------|--------------------------------------|
| <b>Abs</b>     | Antibodies                           |
| <b>AD</b>      | Alzheimer's disease                  |
| <b>ADEM</b>    | Acute disseminated encephalomyelitis |
| <b>AKt</b>     | Protein Kinase B                     |
| <b>AL</b>      | Amyloid light chain                  |
| <b>AML</b>     | Acute myeloid leukemia               |
| <b>Ang-1</b>   | Angiopoietin1                        |
| <b>ASCT</b>    | Autologous stem cell transplantation |
| <b>B2M</b>     | Beta-2 microglobulin                 |
| <b>Bcl-2</b>   | B-cell lymphoma 2                    |
| <b>BCL-XL</b>  | B-cell lymphoma-extra large          |
| <b>bFGF</b>    | Basic fibroblast growth factor       |
| <b>BJP</b>     | Bence Jones' protein                 |
| <b>BM</b>      | Bone marrow                          |
| <b>BMECs</b>   | Bone marrow endothelial cells        |
| <b>BMPCS</b>   | Bone marrow plasma cells             |
| <b>BMSCs</b>   | Bone marrow stromal cells            |
| <b>Bp</b>      | Base pair                            |
| <b>C</b>       | Constant                             |
| <b>CA</b>      | Chromosomal abnormalities            |
| <b>CBC</b>     | Complete blood count                 |
| <b>CBF</b>     | Core binding factor                  |
| <b>CD</b>      | Cluster of differentiation           |
| <b>CD200R</b>  | CD200 receptor                       |

## LIST OF ABBREVIATIONS (cont..)

| Abbrev.      | Full term                                                   |
|--------------|-------------------------------------------------------------|
| <b>CD40L</b> | Cluster of differentiation 40 ligand                        |
| <b>CDK</b>   | Cyclin dependent kinase                                     |
| <b>CG</b>    | Conventional cytogenetics                                   |
| <b>CIA</b>   | Collagen- induced arthritis                                 |
| <b>CLL</b>   | Chronic lymphocytic leukemia                                |
| <b>C-myc</b> | Cellular myelocytomatosis                                   |
| <b>CNS</b>   | Central nervous system                                      |
| <b>CR</b>    | Complete response                                           |
| <b>CRAB</b>  | HyperCalcemia, Renal insufficiency, Anemia and Bone lesions |
| <b>CSCs</b>  | Cancer stem cells                                           |
| <b>CT</b>    | Computerized tomography                                     |
| <b>CXCR4</b> | C-X-C chemokine receptor type 4                             |
| <b>D.S</b>   | Durie-Salmon staging system                                 |
| <b>DCs</b>   | Dendritic cells                                             |
| <b>Del</b>   | Deletion                                                    |
| <b>DKK</b>   | Dikkopf-related-protein                                     |
| <b>DLBCL</b> | Diffuse large B-cell lymphoma                               |
| <b>DNA</b>   | Deoxy-ribo-nucleic acid                                     |
| <b>DOK</b>   | Doking protein                                              |
| <b>EAE</b>   | Experimental autoimmune encephalomyelitis                   |
| <b>EAU</b>   | Experimental autoimmune uveoretinitis                       |
| <b>EBMT</b>  | European Group for Blood and Marrow Transplant              |

## **LIST OF ABBREVIATIONS (cont..)**

| <b>Abbrev.</b> | <b>Full term</b>                      |
|----------------|---------------------------------------|
| <b>ECM</b>     | Extracellular matrix                  |
| <b>ECs</b>     | Endothelial cells                     |
| <b>EDTA</b>    | Ethylene diamine tetra-acetic acid    |
| <b>EFS</b>     | Event free survival                   |
| <b>ERK</b>     | Extracellular signal-regulated kinase |
| <b>ESR</b>     | Erythrocyte Sedimentation rate        |
| <b>FasL</b>    | Fas ligand                            |
| <b>Fc</b>      | Fragment crystallizable region        |
| <b>FCIPT</b>   | Flow cytometric immunophenotyping     |
| <b>FCM</b>     | Flow cytometry                        |
| <b>FISH</b>    | Fluorescent in- situ hybridization    |
| <b>FITC</b>    | Fluorescein isothiocyanate            |
| <b>FLC</b>     | Free light chain                      |
| <b>GAP</b>     | GTPase-activating protein             |
| <b>Hb</b>      | Hemoglobin                            |
| <b>HDT</b>     | High dose chemotherapy                |
| <b>HF</b>      | Hair follicles                        |
| <b>HGF</b>     | Hepatocyte growth factor              |
| <b>HIV</b>     | Human immunodeficiency virus          |
| <b>HLA</b>     | Human leucocyte antigen               |
| <b>HS</b>      | Highly significant                    |
| <b>IAPS</b>    | Inhibitor of apoptosis proteins       |
| <b>ICAM1</b>   | Intercellular adhesion molecule1      |

## **LIST OF ABBREVIATIONS (cont..)**

| <b>Abbrev.</b>       | <b>Full term</b>                         |
|----------------------|------------------------------------------|
| <b>IDB</b>           | International data base                  |
| <b>IFN</b>           | Interferon                               |
| <b>IFX</b>           | Immunofixation                           |
| <b>Ig</b>            | Immunoglobulin                           |
| <b>IGF1</b>          | Insulin-like growth factor 1             |
| <b>IgH</b>           | Immunoglobulin heavy chain               |
| <b>IgL</b>           | Immunoglobulin light chain               |
| <b>IgSF</b>          | Immunoglobulin superfamily               |
| <b>IL</b>            | Interleukin                              |
| <b>IMWG</b>          | International myeloma working group      |
| <b>Inv</b>           | Inversion                                |
| <b>ISS</b>           | International Staging System             |
| <b>ITAM</b>          | Intracellular tyrosine-activating motif  |
| <b>ITIM</b>          | Immunotyrosine inhibitory molecule       |
| <b>JAK2</b>          | Janus kinase2                            |
| <b>JNK</b>           | c-Jun NH (2)-terminal kinase             |
| <b>K<sub>2</sub></b> | Dipotassium salt                         |
| <b>KCs</b>           | Keratinocytes                            |
| <b>LCs</b>           | Langerhans cells                         |
| <b>LDH</b>           | Lactate dehydrogenase                    |
| <b>LFA-1</b>         | Lymphocyte function-associated antigen 1 |
| <b>LPL</b>           | Lymphoplasmacytic lymphoma               |
| <b>M</b>             | Monoclonal                               |
| <b>mAb</b>           | Monoclonal antibody                      |

## LIST OF ABBREVIATIONS (cont..)

| Abbrev.                         | Full term                                          |
|---------------------------------|----------------------------------------------------|
| <b>MAPK</b>                     | Mitogen activated protein kinase                   |
| <b>MCL1</b>                     | Myeloid cell leukemia sequence 1                   |
| <b>MFI</b>                      | Mean fluorescent intensity                         |
| <b>MGUS</b>                     | Monoclonal gammopathy of undetermined significance |
| <b>MHC</b>                      | Major Histocompatibility Complex                   |
| <b>MIP-1<math>\alpha</math></b> | Macrophage inflammatory protein -1 $\alpha$        |
| <b>miRNA</b>                    | Micro- ribose nucleic acid                         |
| <b>MLBCL</b>                    | Mediastinal large B-cell lymphoma                  |
| <b>MM</b>                       | Multiple myeloma                                   |
| <b>MMPs</b>                     | Matrix <a href="#">metalloproteinases</a>          |
| <b>MoAb</b>                     | Monoclonal antibody                                |
| <b>MPR</b>                      | Melphalan, prednisone and lenalidomide             |
| <b>MPT</b>                      | Melphalan, prednisone and thalidomide              |
| <b>MPV</b>                      | Melphalan, prednisone and bortezomib               |
| <b>MRD</b>                      | Minimal residual disease                           |
| <b>MRI</b>                      | Magnetic resonance imaging                         |
| <b>mRNA</b>                     | Messenger ribonucleic acid                         |
| <b>MVD</b>                      | Microvessel density                                |
| <b>N</b>                        | Amino                                              |
| <b>N0.</b>                      | Number                                             |
| <b>ND</b>                       | Not determined                                     |
| <b>NF<math>\kappa</math>B</b>   | Nuclear factor $\kappa$ B                          |
| <b>NK</b>                       | Natural killer cells                               |

## LIST OF ABBREVIATIONS (cont..)

| Abbrev.        | Full term                                       |
|----------------|-------------------------------------------------|
| <b>NLPHL</b>   | Nodular lymphocyte predominant Hodgkin lymphoma |
| <b>NPXY</b>    | Asparagine- Proline- any amino acid- Tyrosine   |
| <b>NS</b>      | Non-significant                                 |
| <b>OPG</b>     | Osteoprotegerin                                 |
| <b>ORS</b>     | Outer root sheath                               |
| <b>OS</b>      | Overall survival                                |
| <b>P value</b> | Probability level                               |
| <b>P</b>       | Percentiles                                     |
| <b>p</b>       | Short arm of chromosome                         |
| <b>PB</b>      | Peripheral blood                                |
| <b>PB</b>      | Peripheral blood                                |
| <b>PBS</b>     | Phosphate buffer saline                         |
| <b>PBSCT</b>   | Peripheral blood stem cell transplantation      |
| <b>PCD</b>     | Plasma cell dyscrasia                           |
| <b>PCL</b>     | Plasma cell leukemia                            |
| <b>PCLI</b>    | Plasma cell -labeling index                     |
| <b>PCM</b>     | Plasma cell myeloma                             |
| <b>PCN</b>     | Plasma cell neoplasm                            |
| <b>PCs</b>     | Plasma cells                                    |
| <b>PD</b>      | Parkinson's disease                             |
| <b>PD</b>      | Progressive disease                             |
| <b>PDGF</b>    | Platelet derived growth factor                  |
| <b>PE</b>      | Phycoerythrin                                   |

## **LIST OF ABBREVIATIONS (cont..)**

| <b>Abbrev.</b> | <b>Full term</b>                                                                                                                         |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PI3K</b>    | Phosphatidylinositol 3-kinase                                                                                                            |
| <b>PKC</b>     | Protein kinase C                                                                                                                         |
| <b>PLT</b>     | Platelet                                                                                                                                 |
| <b>POEMS</b>   | <b>P</b> olyneuropathy, <b>O</b> rganomegaly, <b>E</b> ndocrinopathy/<br><b>E</b> dema, <b>M</b> -protein and <b>S</b> kin abnormalities |
| <b>PR</b>      | Partial response                                                                                                                         |
| <b>PTB</b>     | Phosphotyrosine binding                                                                                                                  |
| <b>q</b>       | Long arm of chromosome                                                                                                                   |
| <b>R</b>       | Receptor                                                                                                                                 |
| <b>r</b>       | Spearman Rank Correlation test                                                                                                           |
| <b>RA</b>      | Rheumatoid arthritis                                                                                                                     |
| <b>RAF</b>     | Rapidly accelerated fibrosarcoma                                                                                                         |
| <b>RANK</b>    | Receptor activator of nuclear factor                                                                                                     |
| <b>RANKL</b>   | Receptor activator of NFκB ligand                                                                                                        |
| <b>RAS</b>     | Rat sarcoma                                                                                                                              |
| <b>Rev/Dex</b> | Lenalidomide-dexamethazone                                                                                                               |
| <b>RNA</b>     | Ribo-nucleic acid                                                                                                                        |
| <b>ROC</b>     | Receiver operating characteristic                                                                                                        |
| <b>RUNX2</b>   | Runt-related transcription factor 2                                                                                                      |
| <b>S</b>       | Significant                                                                                                                              |
| <b>SCF</b>     | Stem cell factor                                                                                                                         |
| <b>SCR</b>     | Stringent complete response                                                                                                              |
| <b>SD</b>      | Stable disease                                                                                                                           |
| <b>SD</b>      | Standard deviation                                                                                                                       |