

Cover Page



Universiteit Leiden



The handle <http://hdl.handle.net/1887/20397> holds various files of this Leiden University dissertation.

Author: Anninga, Jakob Klaas

Title: Clinical and molecular features of high-grade osteosarcoma

Issue Date: 2013-01-09

**Clinical and Molecular
Features of
High-Grade Osteosarcoma**

Jakob Klaas Anninga

Met dank aan:
Stichting Doelfonds Klinische Oncologie Bontius

©2012, Jakob K. Anninga, Leiden, the Netherlands



Cover art: beeld getiteld: "Jongen met tumor in been", beeldhouwster: Desiree Wiggman,
Purmerend, Oktober 2012

Cover design: Joep Fessl, Weesp

Lay-out and printing: Gildeprint Drukkerijen - Enschede, the Netherlands

ISBN: 978-94-6108-376-0

Clinical and Molecular Features of High-Grade Osteosarcoma

Proefschrift

ter verkrijging van
de graad van Doctor aan de Universiteit van Leiden,
op gezag van de Rector Magnificus prof. mr. P.F. van der Heijden,
volgens besluit van het College voor Promoties
te verdedigen op woensdag 9 januari 2013
klokke 13.45 uur

door

Jakob Klaas Anninga

geboren te Holwierde

in 1955

PROMOTIECOMMISSIE:

Promotores : Prof. Dr. P.C.W. Hogendoorn
: Prof. Dr. R.M. Egeler
: Prof. Dr. A.J. Gelderblom

Co-promotor : mevr. Dr. A.M. Cleton-Jansen

Leden : Prof. Dr. A.H.M. Taminiau
: Prof. Dr. P. Hoogerbrugge, UMC Nijmegen/St.Radboud
Ziekenhuis Nijmegen
: Prof. Dr. A.B. Hassan, University of Oxford, United Kingdom
: Dr. H. van den Berg, EKZ/kinderAMC Amsterdam

Zijn is de ziel, is luisteren, is wijken,
is kind worden en naar de sterren kijken,
en daarheen langzaam worden opgelicht.

Uit: "Hebben en Zijn", Ed. Hoornik

*voor mijn geliefde Saskia
en mijn lieve kinderen, Nina en Lennard*

CONTENTS

Chapter 1	General Introduction	11
Chapter 2	Chemotherapeutic adjuvant treatment for osteosarcoma: where do we stand? <i>Eur J Cancer 2011; 47(16): 2431-45</i>	65
Chapter 3	Profiling of high-grade central osteosarcoma and its putative progenitor cells identifies tumorigenic pathways <i>Br J Cancer 2009; 101(11): 1909-18</i>	97
Chapter 4	Testing association of a pathway with survival using gene expression data <i>Bioinformatics 2005; 21(9): 1950-7</i>	119
Chapter 5	Overexpression of the HER-2 oncogene does not play a role in high grade osteosarcomas <i>Eur J Cancer 2004; 40(7): 963-70</i>	137
Chapter 6	Osteosarcoma of the Hands and Feet: a distinct clinic-pathological subgroup <i>Virchows Archiv: In press</i>	153
Chapter 7	Prognostic Factors in pulmonary metastasized high-grade Osteosarcoma <i>Pediatr Blood Cancer 2010; 54(2): 216-21</i>	177
Chapter 8	Summary and Concluding Remarks	191
Chapter 9	Nederlandse samenvatting	211
	Dankwoord	225
	Curriculum Vitae	229

ABBREVIATIONS AND TERMINOLOGY

A = adriamycin, doxorubicin

M = methotrexate

Ifo = ifosfamide

P = cisplatin

E = etoposide

MAP = methotrexate plus adriamycin plus cisplatin

BCD = bleomycin, cyclofosfamide and actinomycin-D

MTP = liposomal muramyl tripeptide fosfatidylethanolamine or mifamurtide

OSS = high-grade osteosarcoma

CR = complete remission

PR = partial remission

RR = response rate (CR + PR)

COSS = Cooperative Osteosarcoma Studygroup

IOR = Istituto Ortopedico Rizzoli

IOR/OS = Istituto Ortopedico Rizzoli Osteosarcoma Study

SSG = Scandinavian Sarcoma Group

EOI = European Osteosarcoma Intergroup

FU = follow-up

OAS = overall survival

EFS = event free survival

pGR = pathologic good response

pPR = pathologic poor response

