

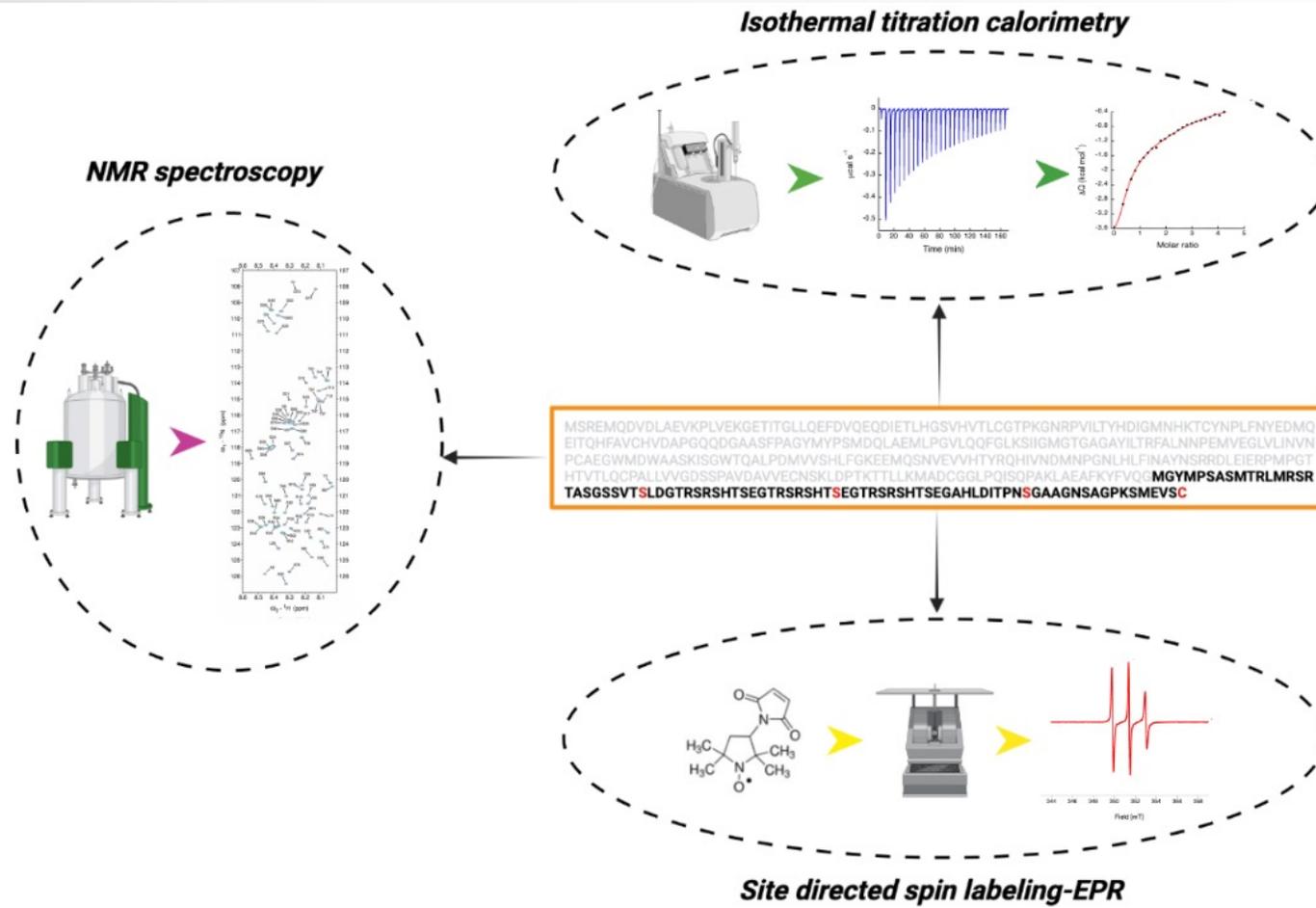
Insights into the intrinsically disordered region of the human protein N-myc downstream regulated gene 1 by NMR and EPR spectroscopy



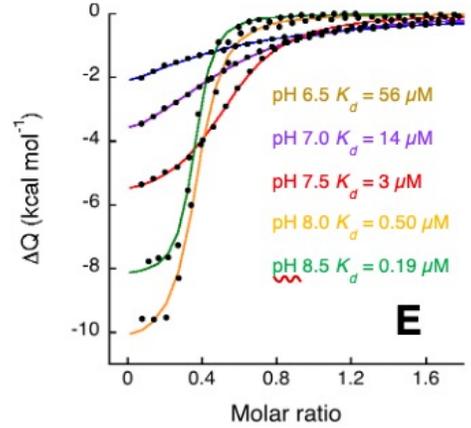
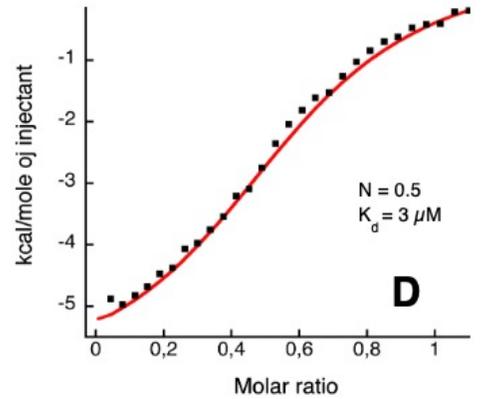
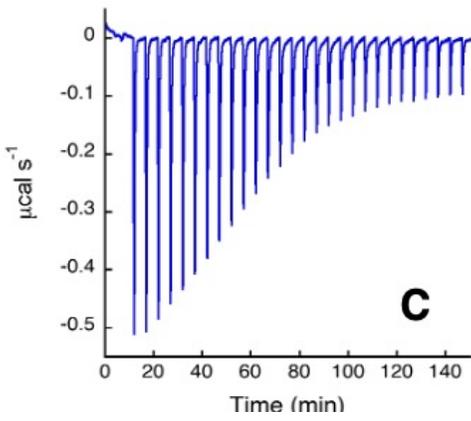
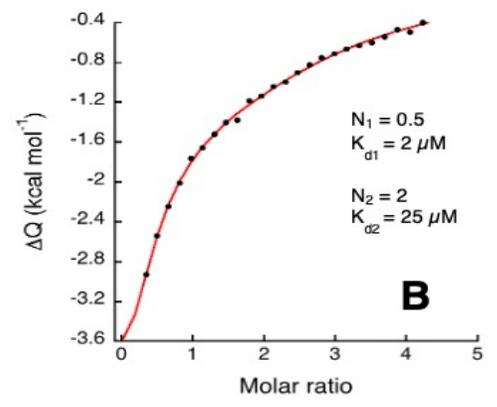
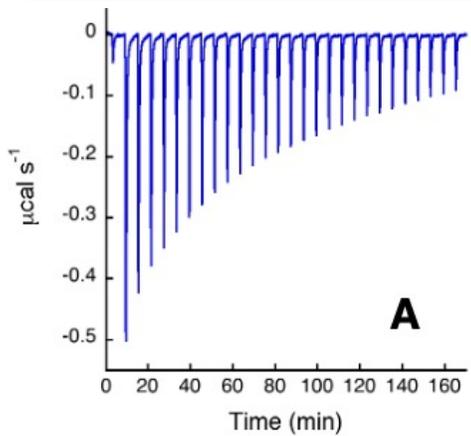
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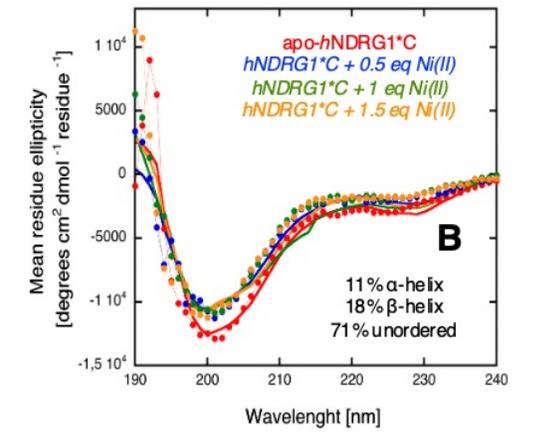
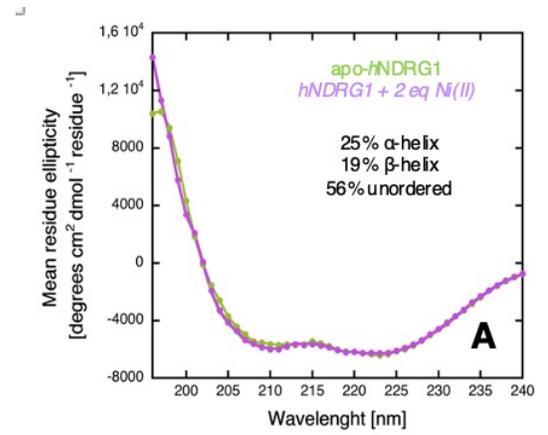


NDRG1 binds nickel

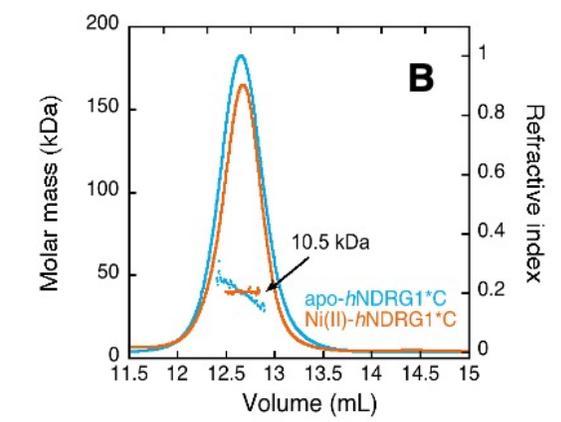
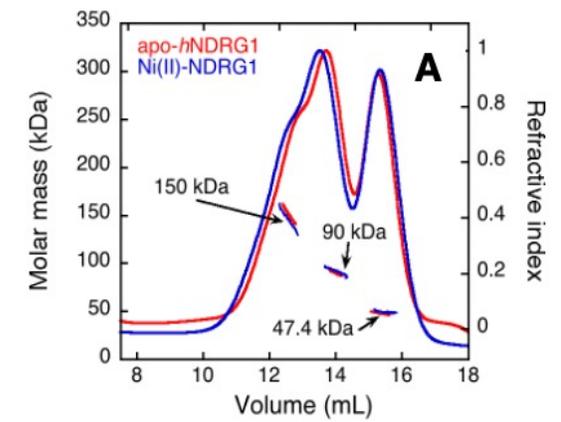


Isothermal titration calorimetry. Raw titration data represent the thermal effect of injections of Ni(II) onto the protein solution containing NDRG1wt (A) or the C-terminal domain (C). Normalized heat reaction data for the binding events (B,D). Dependence of the C-terminal domain affinity for Ni(II) on pH (E).

Ni(II) slightly influences protein structure



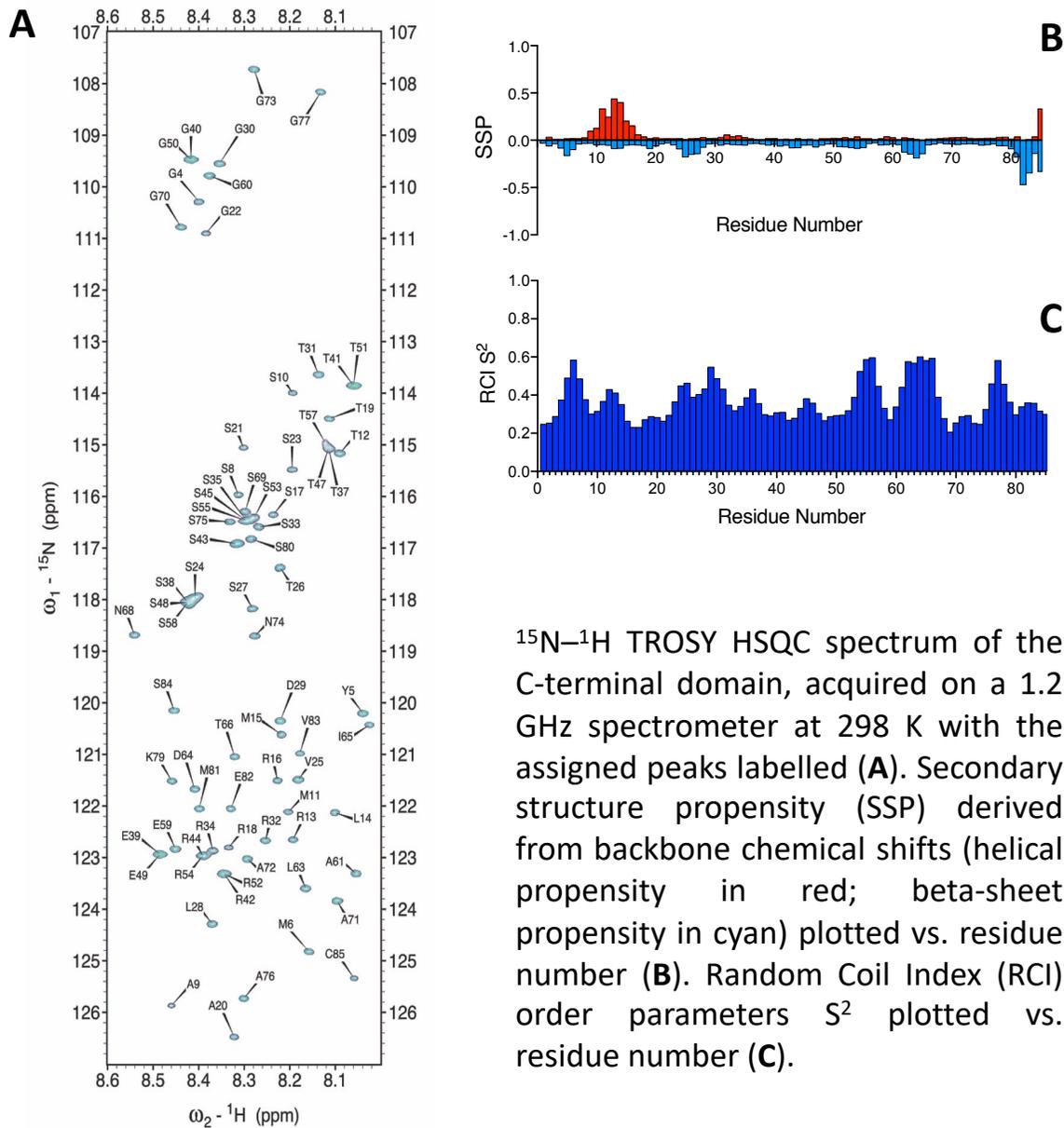
Circular dichroism. Far UV-CD for NDRG1wt (A) and C-terminal domain (B) in the absence and in the presence of Ni(II). The experimental data are represented as circles, and the best fit, obtained from a quantitative data analysis, is represented as a solid line.



SEC-MALS-QELS. Plot of the molar mass distribution of NDRG1wt (A) and C-terminal domain (B) in the absence and in the presence of Ni(II). The solid lines indicate the SEC elution profiles monitored by the refractive index detector, while the dots are the weight-averaged molecular mass.

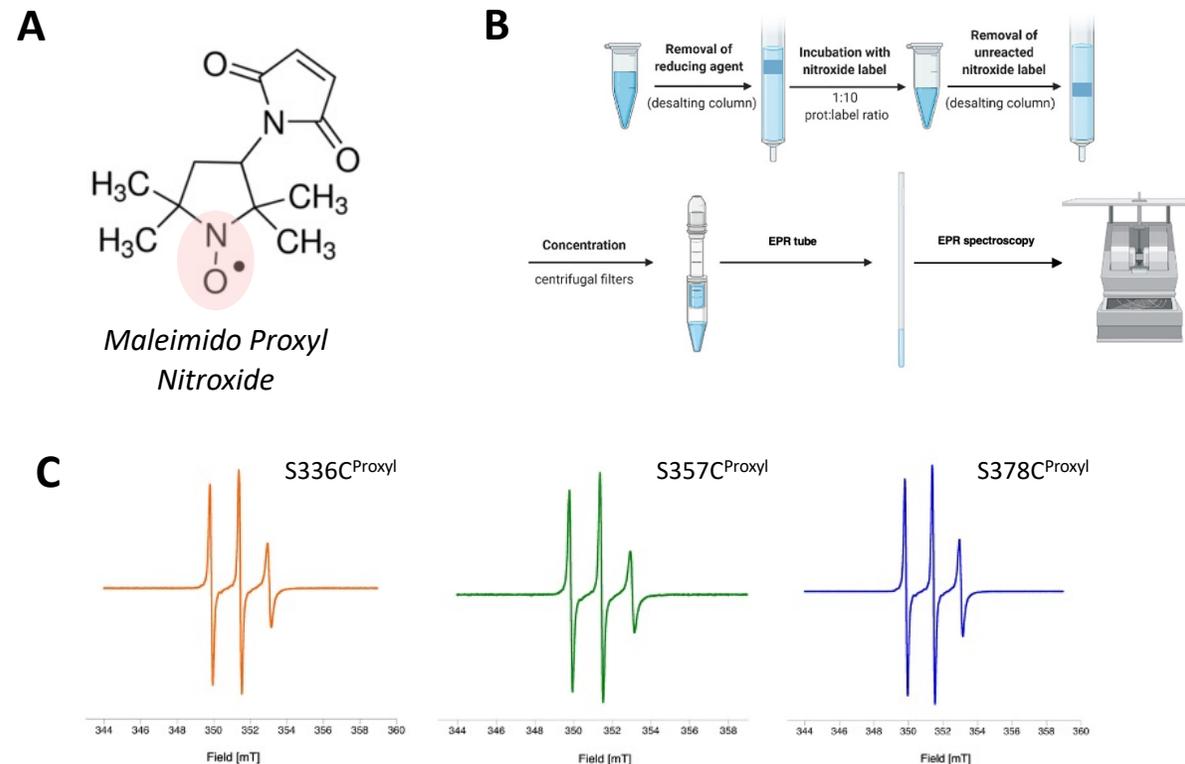
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The C-term has a low proton signal dispersion



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C-term structural dynamics by SDSL-EPR



CW-EPR. Chemical structure of the maleimido proxyl nitroxide label (A). Protocol for the preparation of spin labelled protein with nitroxide probes to be studied by EPR/DEER spectroscopies (B). X-band CW-EPR spectrum of the NDRG1 variants with a single labelling site (C)

Conclusions and future perspective

The human protein NDRG1 is characterized by an intrinsically disordered region localized in its C-terminal domain. The structural and biophysical analysis applied to study this region confirm its high flexibility and the structural-dynamic relationship will be further investigated by in cell EPR, delivering the protein both into Escherichia coli and HeLa cells.